COMMONWEALTH OF PENNSYLVANIA
GOVERNOR'S OFFICE
HARRISBURG

Dear Reader:

This second edition of The Pennsylvania Energy Profile provides a statistical history of energy production and use in Pennsylvania. It updates the first edition of March 1982 and two earlier Energy Abstracts produced by the Governor's Energy Council.

Used in conjunction with our Pennsylvania Energy Policy, the Profile should help our state's citizens better plan their energy future. Please let us know if it is useful to you and how we might improve future editions.

Sincerely,

Robert A. Shinn

Robert A. Shinn
Executive Director
Governor's Energy Council

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# THE PENNSYLVANIA ENERGY PROFILE
# 1960-1981
## Second Edition

BUREAU OF ENERGY POLICY AND PLANNING
PENNSYLVANIA GOVERNOR'S ENERGY COUNCIL
HARRISBURG, PENNSYLVANIA 17105

JANUARY 1984

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# FOREWORD

This report, the Pennsylvania Energy Profile, 1960-1981 is a revised edition of a previous Governor's Energy Council publication designed to present basic information about Pennsylvania's energy system. It is intended to serve as a reference source of energy-related information, to be used by the general public, as well as business and governmental leaders. This report is prepared as a statistical abstract in order to provide as much information as possible in a concise document. The information generally begins with 1960 and extends through the most recent year available (usually 1981).

This edition has new and revised tables. Revisions in primary data sources are responsible for some of the changes, while others are based on previously unavailable primary data. Revisions in consumption of specific fuels by economic sector reflect continual improvements in accounting for Pennsylvania's energy use.

This report was prepared principally by Pamela Mannix, with assistance from Dane Bickley, Jim Gallagher, Mildred Gould and Marilyn Wooding. The Governor's Energy Council encourages questions and comments regarding the information contained in this report. Questions and/or comments should be directed to Pamela Mannix at (717) 787-8999.

# INTRODUCTION

This report presents a wide variety of information relating to Pennsylvania's energy situation in terms of the supply of energy resources, energy production, patterns of energy use and fuel pricing from 1960 through 1981, and 1982, where available. Some of the data series begin with 1970.

Historical information is provided for primary and net consumption of energy by types of fuel and sector. Primary consumption represents the total consumption of principal resources by the following sectors: residential, commercial, industrial, transportation and electric utilities. Net consumption is the end use consumption by the residential, commercial, industrial and transportation sectors. It includes electricity sales to each of these sectors but excludes electrical energy losses incurred during the generation and transmission of electricity.

Accompanying each of the 11 consumption tables is a brief interpretation of the data. In the interpretations, trends and other significant aspects of the information are highlighted. Explanations of cause and effect relationships are not included. All trends which are interpreted in terms of average annual increases or decreases are done in terms of compound rates of change. In addition, each table is followed by a bar chart which graphically depicts consumption data every five years and for the most recent year available at the time of compilation.

In most instances, this report presents total energy consumption data for each form of energy. The petroleum consumption data excludes non-energy petroleum products. Consequently, adjustments have been made so that asphalt, lubricants, road oil and other non-energy petroleum products are not included in the annual total state energy requirements.

The national energy consumption data which are used in this report have, for comparative purposes, been compiled and adjusted in the same manner as the state data in both exclude non-energy petroleum products and sales of electricity. The same methodology has been used to calculate per capita and per gross product for the state and the nation.

Energy expenditures and average retail fuel prices are presented for the residential, commercial, industrial, transportation and electric utility sectors for each fuel type. Domestic coal prices of bituminous, at the mine-mouth, and anthracite, at preparation plants, are also provided.

Particular emphasis is given to the electric utility industry. Included in the report is the most recent information available regarding Pennsylvania's electric generating facilities, both existing and projected, generation of electricity, installed generating capacity and utility fuel costs.

The appendices of this report contain miscellaneous data related to energy use, including census data for home heating fuel and heating and cooling degree days.

Reliable data on alternative energy resources, such as solar, wind, geothermal and biomass are not available at the present time. Therefore, information on these resources are not incorporated into this report.

# HIGHLIGHTS

In 1981, Pennsylvania ranked as the fourth largest consuming state in the nation. The nation as a whole relied on petroleum (43 percent) and natural gas (27 percent) to provide over two-thirds of the total energy required. Pennsylvania relied on petroleum (36 percent) and natural gas (22 percent) to provide almost 60 percent of its energy requirements in the same year. Coal, the state's most abundant resource, supplied 40 percent.

Primary energy consumption in Pennsylvania reached 3,620.6 trillion British thermal units (Btu) in 1981. This was 5 percent below the 1980 level. Total primary consumption of energy increased at a compound annual rate of 0.7 percent between 1960 and 1981. The highest level of primary energy consumption recorded for Pennsylvania for this 21-year period was 4,154.2 trillion Btu in 1973. Consumption decreased 13 percent by 1981.

Major sources of energy which increased from 1980 to 1981 were natural gas (up 1.2 percent) and nuclear (up 18.0 percent); major sources which decreased were coal (down 8.5 percent) and petroleum (down 8.2 percent).

The total number of gas wells drilled in Pennsylvania in 1981 was 1,677. This was a 52 percent increase over the 1980 total of 1,100. The oil and gas industry reported 1,641 oil wells completed in Pennsylvania in 1981. This represented a 111 percent increase over the 777 wells accounted for in 1980. The Pennsylvania Department of Environmental Resources (DER) reported 1,721 new gas wells and 2,175 new oil wells drilled in 1982.

Three of the major end-use sectors decreased their primary energy consumption between 1980 and 1981: the residential sector (down 3.4 percent), the industrial sector (down 7.8 percent), and the transportation sector (down 5.2 percent). Decreases in the use of petroleum in each of these sectors was the primary cause of the sector decreases: the residential sector (down 12.4 percent), the industrial sector (down 12.6 percent), and the transportation sector (down 5.9 percent). Coal usage declined for the industrial sector only (down 13.4 percent), while the residential sector saw its greatest increase of coal (up 25.6 percent). The commercial sector increased its use of primary energy by 5.3 percent in 1981. This increase came from a rise in natural gas (up 8.7 percent) and coal (up 18 percent).

Pennsylvania was among the ten largest petroleum, natural gas and coal consuming states in 1981. As the eighth largest petroleum consumer, it accounted for 4.2 percent of all petroleum consumed in the nation. As number seven on the list of leading natural gas consumers, it accounted for 4.0 percent of all natural gas consumed. Pennsylvania ranked as the second largest coal consuming state and accounted for 9.2 percent of the U.S. coal consumption total.

Primary energy consumption in Pennsylvania from 1960 through 1981 increased 16.7 percent. Of the major energy sources used during this time period, petroleum and natural gas displayed increases — 17.2 percent and 48.9 percent, respectively. Coal usage decreased 3.9 percent. Hydroelectricity, a smaller contributor to the primary energy consumed in Pennsylvania, continued a rather steep decline of 65.3 percent.

While the level of primary energy consumed in Pennsylvania grew from 1960 through 1981, the state's population increased 5 percent, producing a per capita increase in primary energy consumption of 11 percent. The use of primary energy in Pennsylvania averaged 274 million Btu per person in 1960 and 305 million Btu per person in 1981.

# SECTION ONE

## PENNSYLVANIA ENERGY SUPPLY AND PRODUCTION

Pennsylvania consumes over twice as much energy as it produces. Total primary energy consumption in 1981 was 3,620.6 trillion Btu, while total primary energy production was 2,079.3 trillion Btu. This sections presents Pennsylvania's primary energy production and supply data from 1960 through 1981. The 1982 data is recorded where available. Graphical presentations are provided for each fuel as a visual reference.

Coal, the most abundant primary energy resource in Pennsylvania, provided approximately 40.6 percent of the primary energy consumption total in 1981. Among all states, Pennsylvania now ranks second in coal consumption and fourth in production. Total coal production in 1981 was 83.2 million tons, almost the same figure it was in 1960. It dropped 5 percent to 79.2 million tons in 1982, according to the Pennsylvania Department of Environmental Resources (DER). Production has continued to decline for the third straight year at a compound annual rate of 5.5 percent.

Pennsylvania anthracite production was 5.4 million tons in 1981 as indicated in the flow chart. This represents a 69.5 percent decrease from 1960, when anthracite production registered 17.7 million tons. As illustrated in the diagram, of the 5.4 million tons produced, 1.1 million tons were sent to out-of-state users, 1.7 million tons were exported to Canada and overseas, and 3.0 million tons were made available for Pennsylvania consumption, with electric utilities being the largest user. Anthracite production dropped 13 percent to 4.5 million tons in 1982, according to DER.

The 1981 bituminous coal production in Pennsylvania was 78.1 million tons, 19.1 percent above the level produced in 1960. The bituminous coal flow chart indicates that 30.4 million tons were sent to out-of-state users and 17.7 million tons were exported out of the U.S. Coal amounting to 15.0 million tons came into Pennsylvania from other coal producing areas. Distribution of bituminous coal for consumer use totaled 55.3 million tons with the electric utilities, again, consuming the largest share. Bituminous production increased 4.3 percent to 74.8 million tons in 1982, as recorded by DER.

This section also presents a summary of the natural gas flows in Pennsylvania. The state produces a small fraction of the natural gas it consumes. In 1981, natural gas production was 122.5 billion cubic feet (Bcf), or 16 percent of the total consumption of 776.0 Bcf. Natural gas provided over one-fifth of Pennsylvania's total primary energy needs. Pennsylvania receives much of its gas from interstate pipelines. The sources of natural gas for these pipelines are in Texas, Louisiana and other southwestern states. Interstate movements in 1981 were 735.7 Bcf. Of the 858.2 Bcf available for end-users, approximately 785 Bcf or 92 percent of that total was consumed. The remainder was accounted for by extraction loss, gas unaccounted for and net changes in storage. Injections into underground storage reservoirs (data not shown on flow chart) during 1981 totaled 360.8 Bcf and withdrawals were slightly below at 311.1 Bcf. This activity is high in a state such as Pennsylvania that is characterized by relatively low production and high consumption. Natural gas production declined only 1 percent between 1981 and 1982 to reach 121.1 Bcf.

Finally, this section includes a summary of refinery inputs and outputs in Pennsylvania and a comparison of petroleum product consumption and production. The last year that refinery receipts of crude oil by state and by district were made available was for 1980. Therefore, to be consistent, all of the data provided in the flow chart is for that specific year. In 1980, crude oil production was 2.9 million barrels (MMBbl) and consumption of primary petroleum products totaled 232 MMBbl. Pennsylvania refineries produced 238.8 MMBbl of refined products in 1980. Of this total, gasoline was the largest amount at 117.4 MMBbl or 49.2 percent. The other major refined petroleum products were distillate fuel oil, residual fuel oil, jet fuel, kerosene, and liquefied petroleum gas (LPG). Pennsylvania was a net importer of most petroleum products in 1980. However, the state was a net exporter of gasoline (9.5 MMBbl) or about 8.8 percent of total Pennsylvania consumption.

Pennsylvania continued through 1981 to produce only 1 percent of the primary petroleum products it consumed and also, to rank as the 23rd oil producing state. Nonetheless, crude oil production has increased for the 5th year in a row. It has risen from 2.7 MMBbl in 1977 to 4.3 MMBbl in 1982, an increase of 59.3 percent. The 1982 refining capacity was 718.3 thousand barrels per calendar day, representing about 4.3 percent of U.S. refining capacity. Ninety percent of the Pennsylvania refining capacity is located in the eastern part of the state.

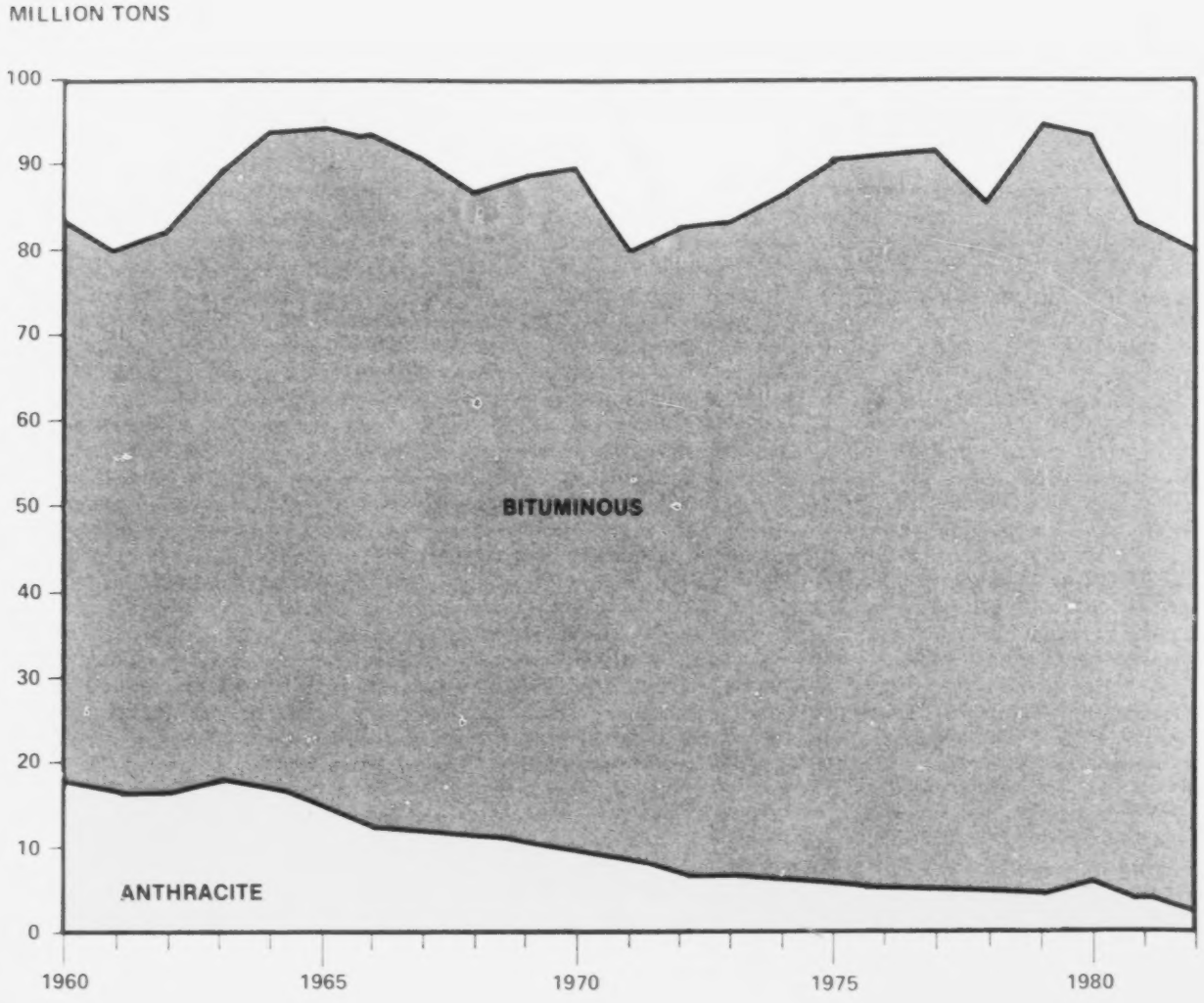
# PRIMARY ENERGY PRODUCTION, 1960-1982
# PENNSYLVANIA

| | Anthracite Coal | | Bituminous Coal | | Total Coal | | Crude Oil | | Natural Gas | | Hydro Electricity | | Total Primary Energy Production | Change From Previous Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Trillion Btu | Thousand Tons | Trillion Btu | Thousand Tons | Trillion Btu | Thousand Tons | Trillion Btu | Thousand Barrels | Trillion Btu | Million Cubic Feet | Trillion Btu | Million Kwh | Trillion Btu | |
| 1960 | 430.3 | 17,721 | 1,683.2 | 65,596 | 2,113.5 | 83,317 | 34.9 | 6,009 | 117.9 | 113,928 | 19.4 | 1,809 | 2,285.7 | — |
| 1961 | 403.1 | 16,507 | 1,615.9 | 63,171 | 2,019.0 | 79,678 | 32.7 | 5,643 | 103.9 | 100,427 | 15.7 | 1,472 | 2,171.3 | − 5.0 |
| 1962 | 402.3 | 16,496 | 1,679.3 | 65,648 | 2,081.6 | 82,144 | 30.8 | 5,302 | 93.2 | 90,053 | 15.9 | 1,504 | 2,221.5 | + 2.3 |
| 1963 | 421.5 | 17,411 | 1,818.5 | 71,259 | 2,240.0 | 88,670 | 29.5 | 5,083 | 95.5 | 92,657 | 13.3 | 1,267 | 2,378.3 | + 7.1 |
| 1964 | 398.7 | 16,525 | 1,917.7 | 77,322 | 2,370.4 | 93,847 | 29.7 | 5,113 | 84.8 | 82,166 | 13.3 | 1,267 | 2,498.2 | + 5.0 |
| 1965 | 343.5 | 14,230 | 2,036.7 | 80,120 | 2,380.2 | 94,350 | 28.5 | 4,922 | 87.2 | 84,461 | 13.7 | 1,313 | 2,509.6 | + 0.5 |
| 1966 | 288.1 | 12,031 | 2,060.7 | 81,450 | 2,348.8 | 93,481 | 25.2 | 4,337 | 93.9 | 90,914 | 14.8 | 1,425 | 2,482.7 | − 1.1 |
| 1967 | 271.6 | 11,552 | 1,990.2 | 79,101 | 2,261.8 | 90,653 | 25.4 | 4,387 | 92.8 | 89,966 | 19.8 | 1,899 | 2,399.8 | − 3.3 |
| 1968 | 257.4 | 11,025 | 1,897.4 | 75,715 | 2,154.8 | 86,740 | 24.1 | 4,160 | 90.7 | 87,987 | 12.1 | 1,168 | 2,281.7 | − 4.9 |
| 1969 | 238.0 | 10,166 | 1,946.8 | 78,185 | 2,184.8 | 88,351 | 25.8 | 4,448 | 81.6 | 79,134 | 9.4 | 902 | 2,301.6 | + 0.8 |
| 1970 | 216.4 | 9,248 | 1,968.7 | 80,092 | 2,185.1 | 89,340 | 23.7 | 4,093 | 79.2 | 76,841 | 13.1 | 1,251 | 2,301.1 | − 0.02 |
| 1971 | 192.4 | 8,188 | 1,739.9 | 71,777 | 1,932.3 | 79,965 | 22.0 | 3,798 | 80.9 | 78,451 | 8.1 | 771 | 2,043.3 | − 1.1 |
| 1972 | 151.3 | 6,462 | 1,824.5 | 75,863 | 1,975.8 | 82,325 | 20.0 | 3,441 | 76.0 | 73,958 | 15.9 | 1,533 | 2,087.7 | + 2.2 |
| 1973 | 145.8 | 6,293 | 1,843.9 | 76,797 | 1,989.7 | 83,090 | 19.0 | 3,282 | 80.2 | 78,514 | 14.2 | 1,371 | 2,103.1 | + 0.8 |
| 1974 | 137.4 | 6,090 | 1,899.4 | 80,042 | 2,036.8 | 86,132 | 20.2 | 3,478 | 84.6 | 82,637 | 14.5 | 1,392 | 2,156.1 | + 2.5 |
| 1975 | 131.7 | 5,629 | 1,959.9 | 84,479 | 2,091.6 | 90,108 | 18.9 | 3,264 | 86.5 | 84,676 | 16.4 | 1,575 | 2,213.4 | + 2.7 |
| 1976 | 120.5 | 5,292 | 1,985.1 | 85,748 | 2,105.6 | 91,040 | 17.5 | 3,019 | 91.2 | 89,386 | 14.7 | 1,415 | 2,229.0 | + 0.7 |
| 1977 | 117.3 | 5,061 | 1,961.8 | 86,422 | 2,079.1 | 91,483 | 15.7 | 2,715 | 93.6 | 91,717 | 12.6 | 1,205 | 2,201.0 | − 1.3 |
| 1978 | 118.5 | 5,038 | 1,802.1 | 80,343 | 1,920.6 | 85,381 | 16.7 | 2,887 | 99.6 | 97,763 | 7.9 | 759 | 2,044.8 | − 7.1 |
| 1979 | 114.1 | 4,835 | 2,014.3 | 89,167 | 2,128.4 | 94,002 | 16.7 | 2,874 | 98.3 | 96,313 | 12.7 | 1,221 | 2,256.1 | + 10.3 |
| 1980 | 139.7 | 5,983 | 1,955.6 | 87,069 | 2,095.3 | 93,052 | 17.1 | 2,940 | 99.0 | 97,439 | 7.6 | 734 | 2,280.0 | − 1.1 |
| 1981 | 121.4 | 5,125 | 1,747.5 | 78,083 | 1,868.9 | 83,208 | 21.6 | 3,729 | 124.3 | 122,454 | 6.9 | 659 | 2,079.3 | − 8.8 |
| 1982 | 105.6 | 4,459 | 1,673.0 | 74,755 | 1,778.6 | 79,214 | 24.8 | 4,282 | 122.9 | 121,111 | NA | NA | — | — |

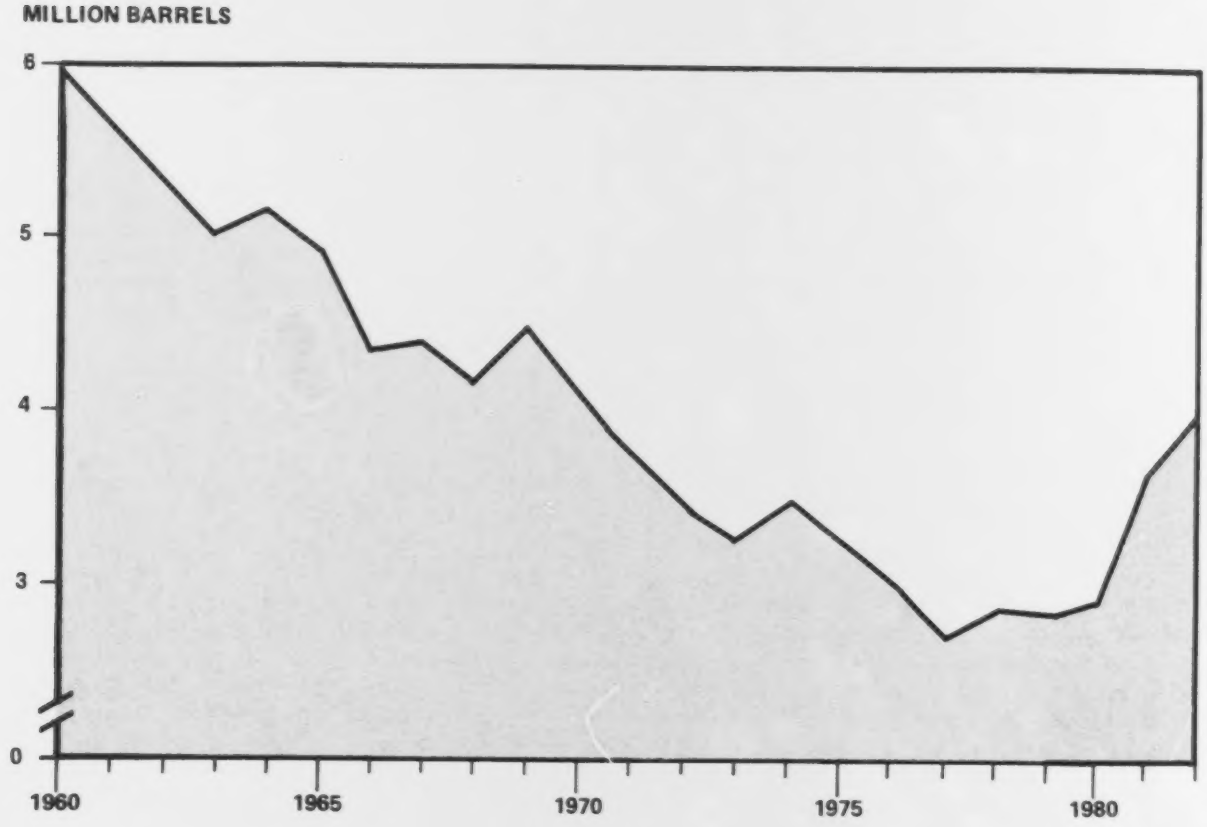
**Note:** The reported Btu-content of all fuels except crude oil has varied historically. The values used in conversion for this table are those estimated by the U.S. Department of Energy for the respective years.

**Sources:** Pennsylvania Department of Environmental Resources, Bureau of Topographic and Geologic Survey, Oil and Gas Division, *Oil and Gas Developments in Pennsylvania in 1982*; Bureau of Mining and Reclamation, *Annual Report on Mining, Oil and Gas, and Land Reclamation and Conservation Activities*, 1981.
U.S. Department of Energy, Energy Information Administration, *Crude Petroleum, Petroleum Products and Natural Gas Liquids*, annual; *Natural Gas Production and Consumption*, annual; *Power Production, Fuel Consumption, and Installed Capacity Data*, annual; *1982 Annual Energy Review; Electric Power Annual; Petroleum Supply Annual 1981.*

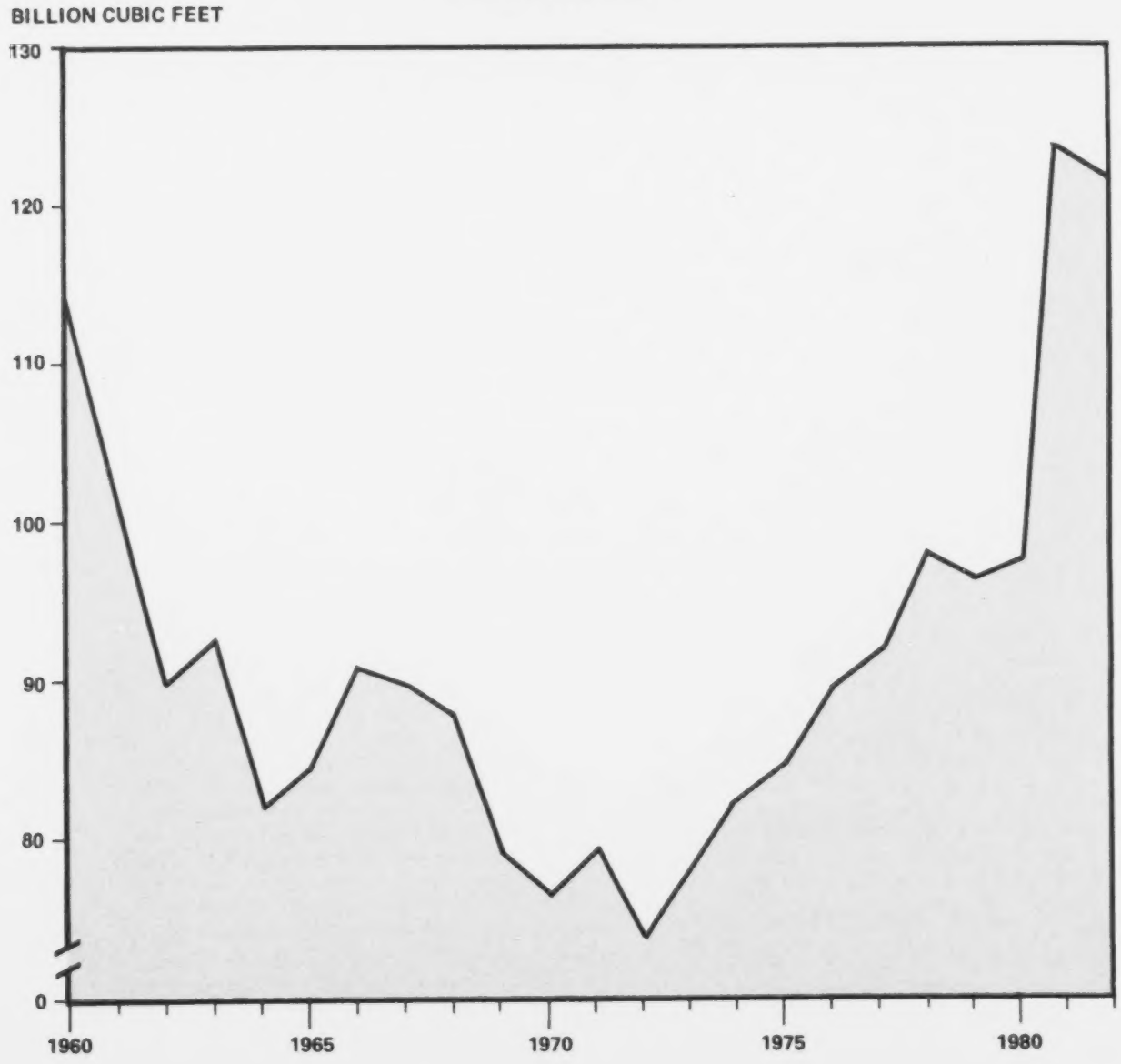
## ANTHRACITE AND BITUMINOUS COAL PRODUCTION, 1960-1982
## PENNSYLVANIA



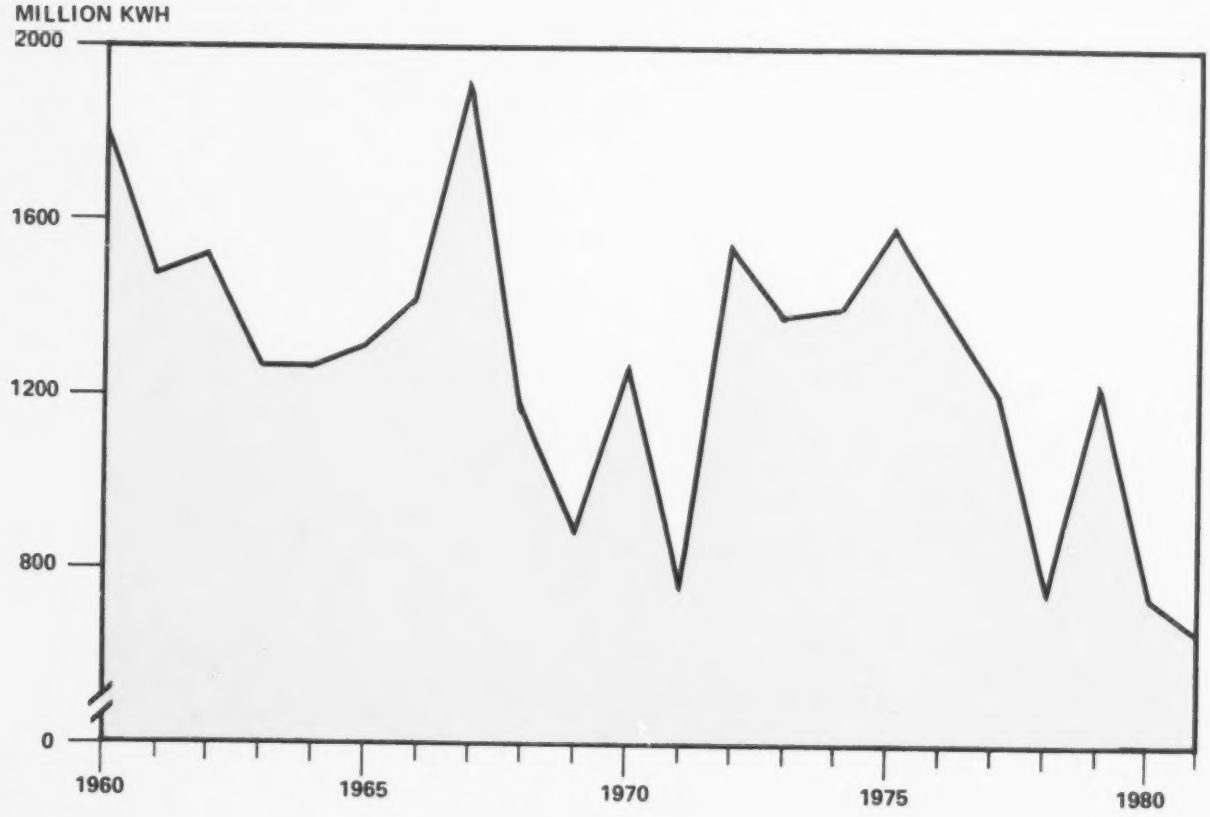
## CRUDE OIL PRODUCTION, 1960-1982
## PENNSYLVANIA



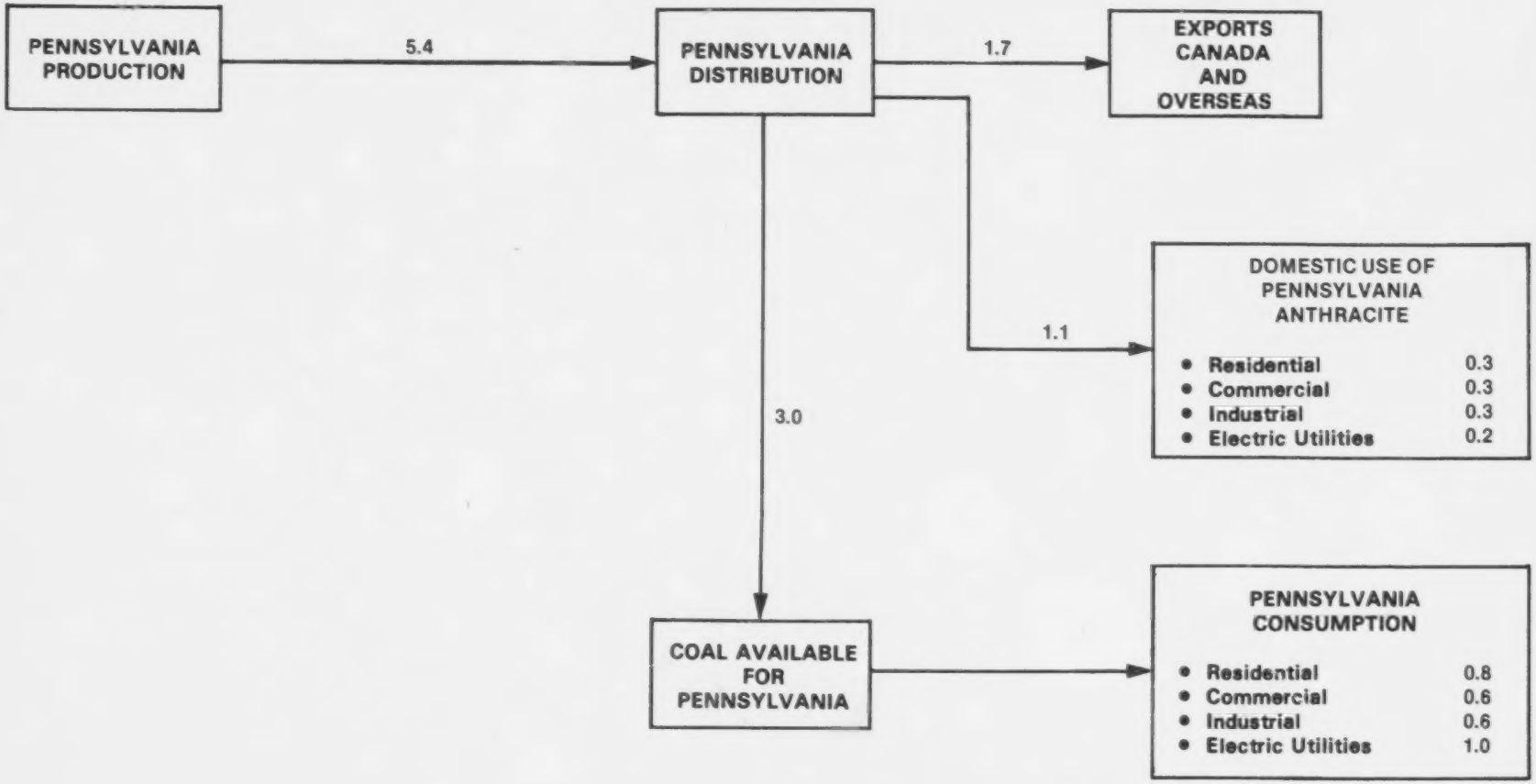
## NATURAL GAS PRODUCTION, 1960-1982
## PENNSYLVANIA



## HYDRO POWER PRODUCTION, 1960-1981
## PENNSYLVANIA



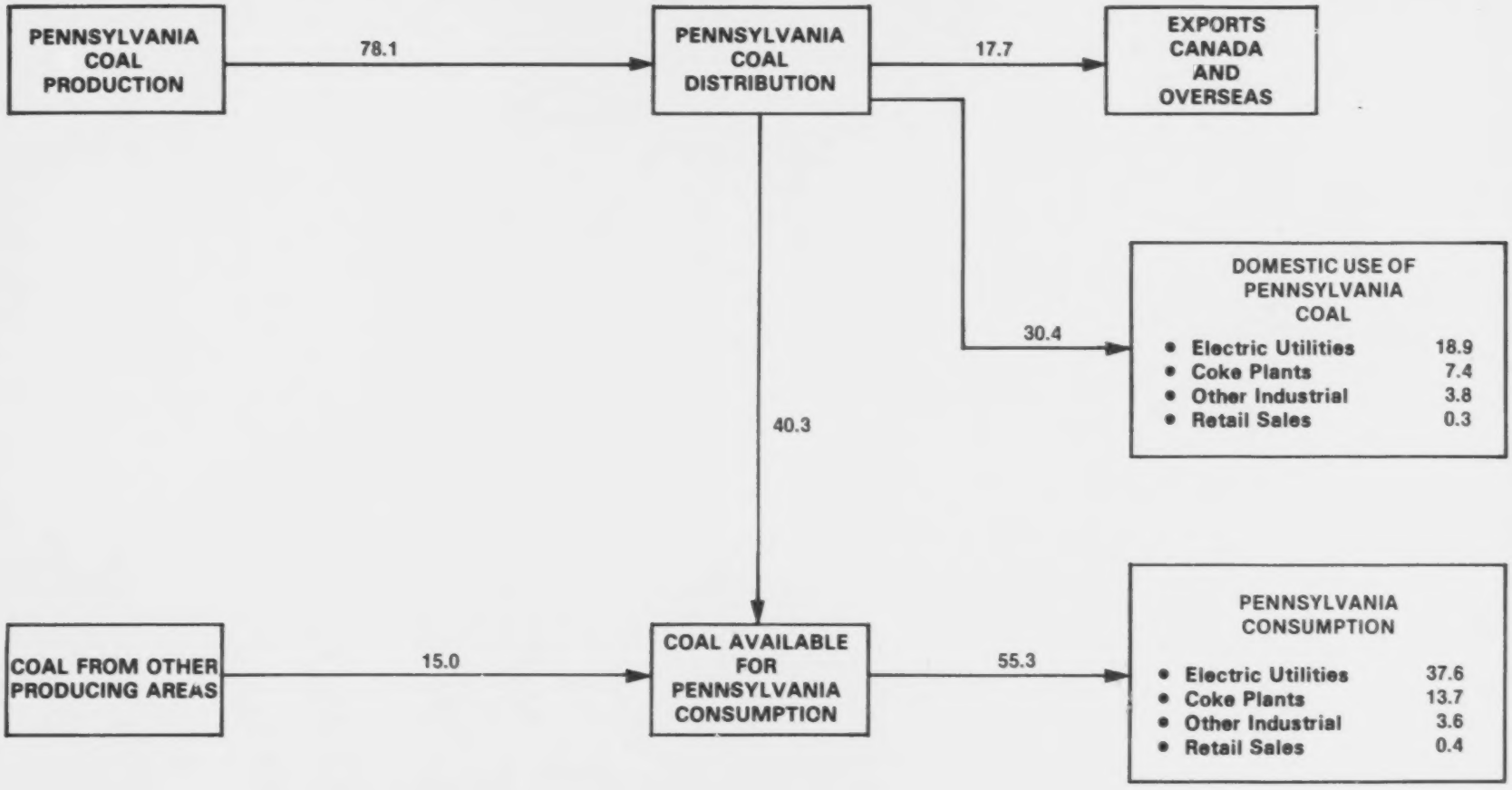
## PENNSYLVANIA ANTHRACITE COAL FLOWS, 1981
(Million short tons)




**Note:** The anthracite production figure differs slightly from that which is listed on p. 2. A different source of information utilizing a different data collection methodology was used here for the purpose of being consistent with the other data being presented. Totals may not add due to rounding.

**Sources:** U.S. Department of Energy, Energy Information Administration, *Weekly Coal Production*, April 30, 1983; *Coal Data: A Reference*, October 1982; *State Energy Data Report*, June 1983; *Coal Distribution, January-December 1981.*

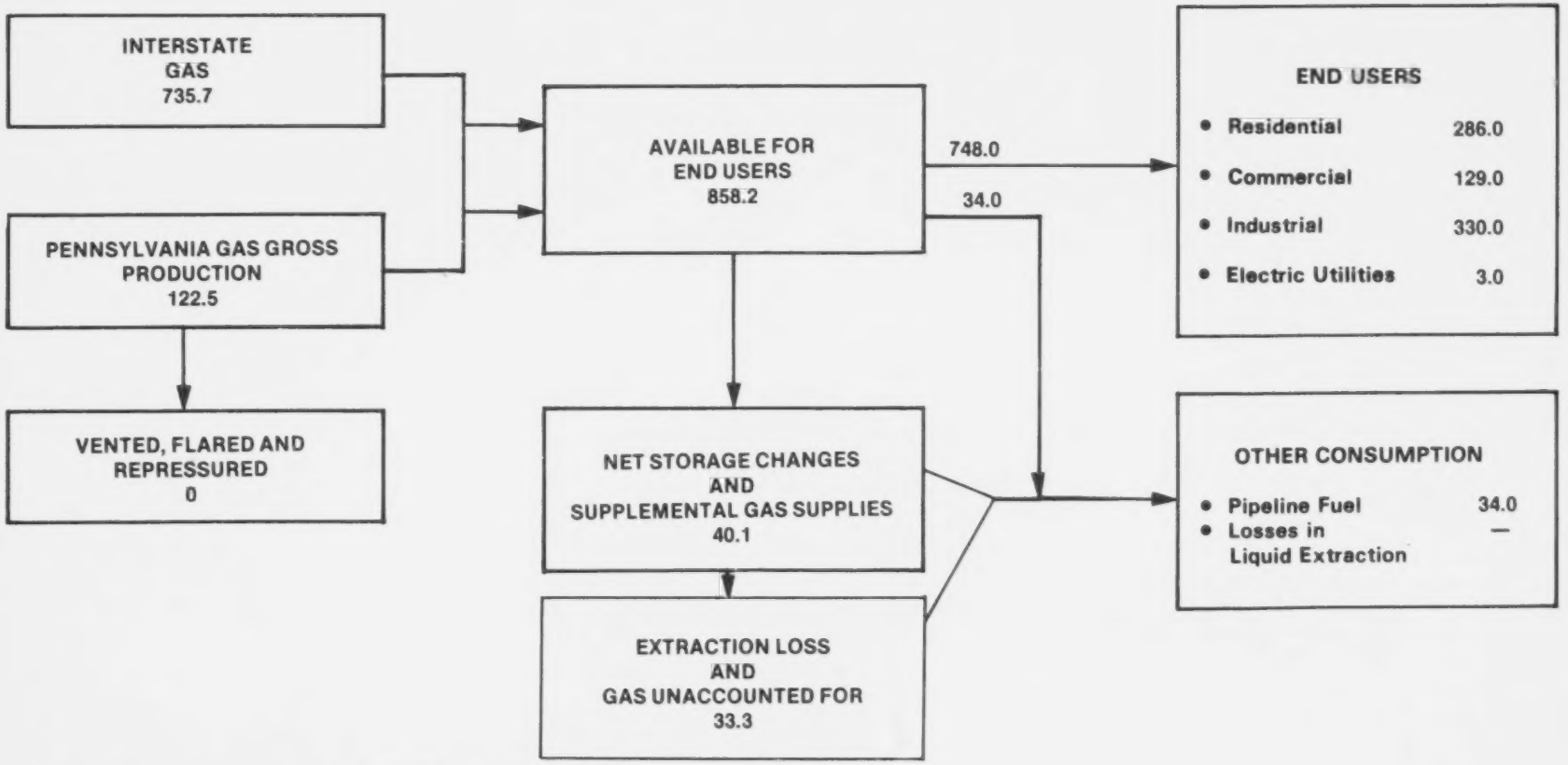
## PENNSYLVANIA BITUMINOUS COAL FLOWS, 1981
(Million short tons)




**Note:** Totals may not add because tney take into account coal distribution to and from coal producing districts 1 and 2 which include mainly Pennsylvania coal mines, but alsc some in Maryland and West Virginia.

**Sources:** U.S. Department of Energy, Energy Information Administration, *Weekly Coal Production*, April 30, 1983; *Coal Distribution, January-December 1981*; *State Energy Data Report*, June 1983.

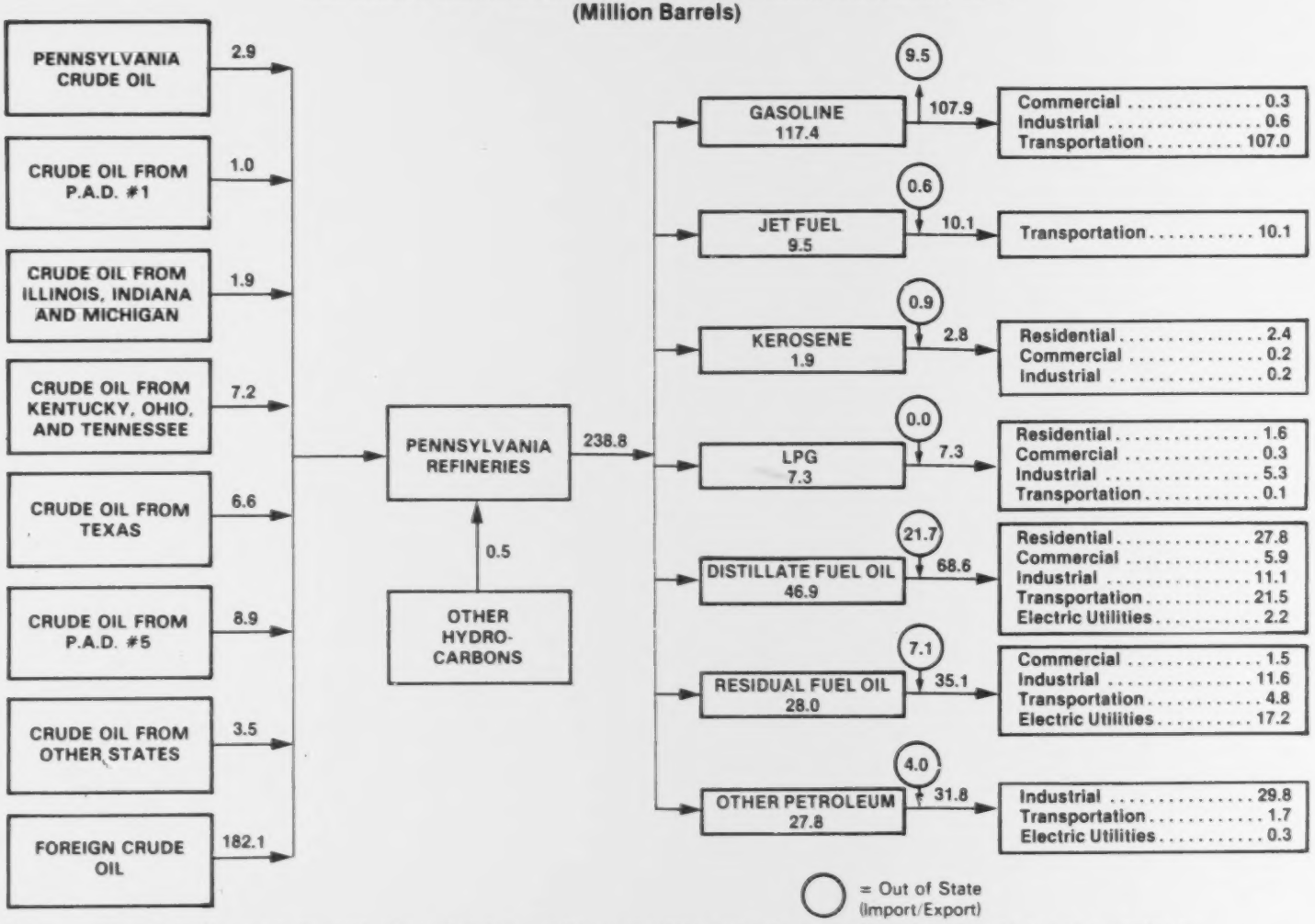
## PENNSYLVANIA GAS FLOWS, 1981
(All Volumes are BCF)




**Note:** Totals may not add due to independent rounding.

**Sources:** U.S. Department of Energy, Energy Information Administration, *Natural Gas Annual 1981*; *State Energy Data Report*, June 1983.
Pennsylvania Department of Environmental Resources, Bureau of Topographic and Geologic Survey, Oil and Gas Division, *Oil and Gas Developments in Pennsylvania in 1981*.
American Gas Association, *Gas Facts 1981*.

## REFINERY INPUTS AND OUTPUTS IN PENNSYLVANIA, 1980
(Million Barrels)




**Note:** The collection and dissemination of data on refinery receipts and refinery inputs and outputs is not available by state after 1980. This service, provided by the Energy Information Administration, has been discontinued. Therefore, to complete this chart, 1980 data was used.

**Note:** P.A.D. refers to Petroleum Administration for Defense (PAD) Districts. For a complete listing see the appendix.

**Note:** Totals may not add due to rounding.

**Sources:** U.S. Department of Energy, Energy Information Administration, *Crude Petroleum, Petroleum Products, and Natural Gas Liquids — 1980*; *State Energy Data Report*, June 1983; *Refinery Inputs/Outputs for Pennsylvania* — 1980 (computer printout).

# SECTION TWO

## PENNSYLVANIA ENERGY CONSUMPTION BY FUEL AND SECTOR, 1960-1981

This section presents primary and net consumption of energy in Pennsylvania by fuel type and sector from 1960 through 1981. Energy consumption data for this 22-year period were derived from the U.S. Department of Energy, Energy Information Administration's (DOE/EIA) ***State Energy Data Report.*** The methodological changes were applied to the entire historical series. This ensures that to the extent possible the historical series shown in this report have been developed in a consistent manner. Thus, users of this statistical abstract should understand that comparisons of consumption estimates in this report to those in the previous issue (March 1982) may not be valid.

Primary consumption of energy is shown by fuel type in physical units and in British Thermal Units (Btu). Total primary consumption of energy for each major consuming sector (residential, commercial, industrial, transportation and electric utilities) is presented for the historic period. All tables displaying primary energy consumption exclude non-energy petroleum products (asphalt, lubricants, road oil and other miscellaneous petroleum products). These figures can be found in the appendix.

Data presented on sales of electricity have been compiled from annual statistical reports published by the Edison Electric Institute (EEI) for the period 1960 through 1981. For purposes of reporting electricity sales by sector, several classes of service have been incorporated into the commercial sector.

Electricity sales are combined with the end-use consumption of coal, petroleum products, and natural gas to determine total net energy consumption in the residential, commercial, industrial and transportation sectors. Total net energy consumption is provided in trillion Btu (TBtu) with a detailed delineation of historic consumption by fuel and sector.

In addition, this section includes U.S. consumption data of Pennsylvania anthracite by consumer category from 1960 through a preliminary 1982 estimate.

Finally, this section includes estimates of wood energy consumption from 1960 through 1981. Recent and substantial growth in wood energy consumption has created a need for information about the penetration of wood into energy markets. The EIA within the U.S. Department of Energy (DOE) contracted with Applied Management Services, Inc. to provide estimates of wood energy consumption. Annual state-level estimates were developed for energy purposes in the primary economic sectors. The methodologies used to estimate wood energy consumption were developed using the most current and reliable data available. Sufficient data were not always available to develop verifiable wood energy consumption estimates, particularly for the residential and commercial sectors. The final report which developed from this research should be viewed as an exploratory effort. Therefore, the wood energy consumption estimates for Pennsylvania, which are provided in this section, should be used with caution.

Data for specific years used in the narrative are taken directly from the tables that appear on the left-hand pages.

# PRIMARY CONSUMPTION OF ENERGY BY FUEL, 1960-1981

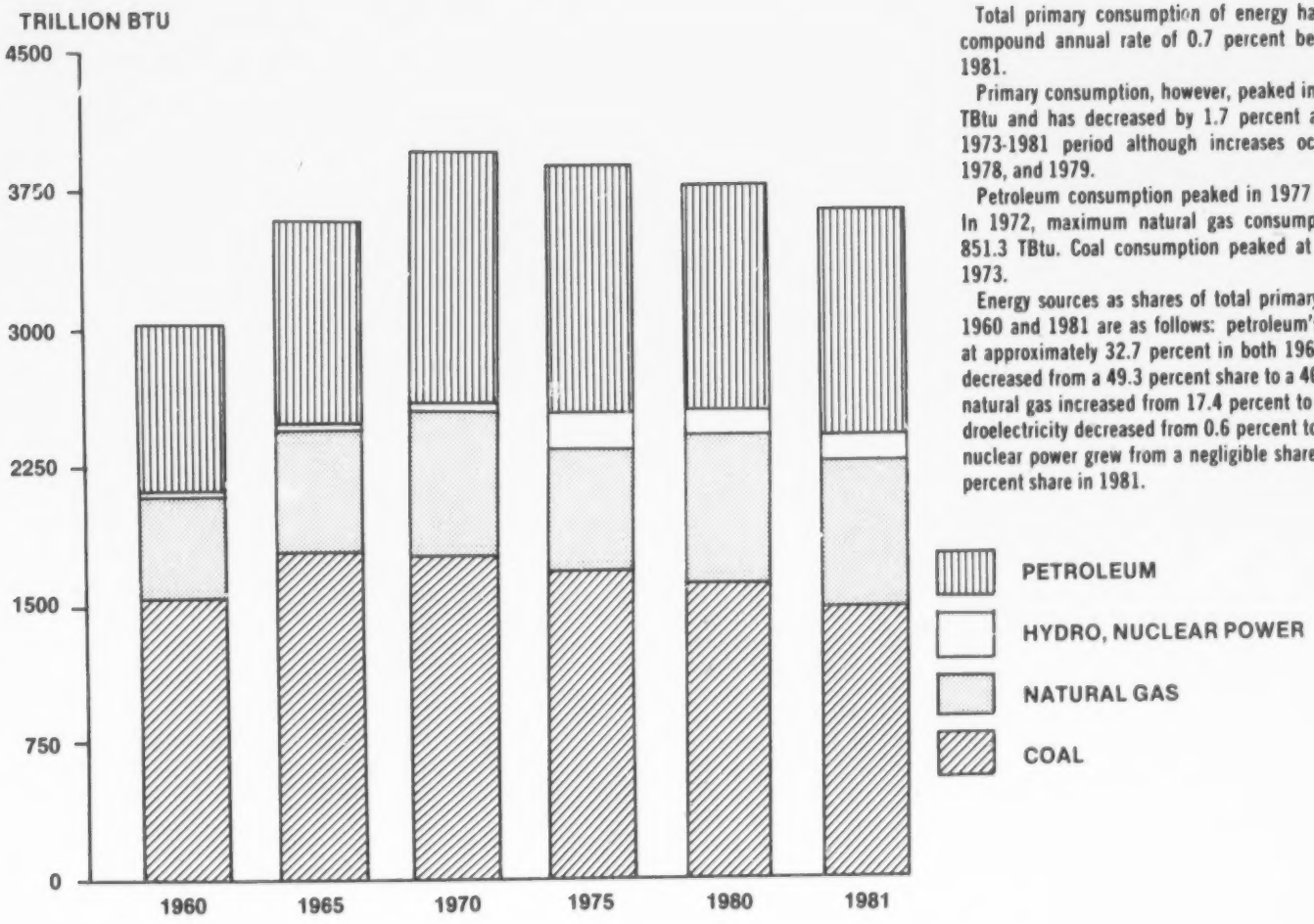
| | Total Coal [1] | | Natural Gas | | Hydro-Electric Power [2] | | Nuclear Power | | Petroleum [3] | | Total Primary Consumption | Change From Previous Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Trillion Btu | Thousand Tons | Trillion Btu | Billion Cubic Feet | Trillion Btu | Million Kwh | Trillion Btu | Million Kwh | Trillion Btu | Thousand Barrels | Trillion Btu | Percent |
| 1960 | 1,529.4 | 58,486 | 540.1 | 522 | 19.6 | 1,826 | 2.7 | 230 | 1,009.8 | 179,003 | 3,101.6 | – |
| 1961 | 1,433.3 | 54,850 | 547.7 | 529 | 15.9 | 1,489 | 3.5 | 305 | 986.1 | 175,247 | 2,986.9 | – 3.7 |
| 1962 | 1,476.6 | 56,596 | 568.7 | 550 | 16.0 | 1,519 | 3.7 | 320 | 1,034.2 | 183,674 | 3,099.3 | + 3.8 |
| 1963 | 1,550.3 | 59,389 | 604.2 | 586 | 13.4 | 1,280 | 4.2 | 355 | 1,059.5 | 188,154 | 3,231.5 | + 4.3 |
| 1964 | 1,732.8 | 66,463 | 628.4 | 609 | 13.4 | 1,281 | 0.3 | 25 | 1,066.7 | 189,468 | 3,441.6 | + 6.5 |
| 1965 | 1,793.6 | 68,667 | 649.1 | 629 | 13.9 | 1,329 | 3.7 | 313 | 1,105.9 | 196,372 | 3,566.3 | + 3.6 |
| 1966 | 1,798.6 | 69,060 | 699.5 | 677 | 15.0 | 1,443 | 6.1 | 525 | 1,148.4 | 203,596 | 3,667.6 | + 2.8 |
| 1967 | 1,752.9 | 67,685 | 700.2 | 678 | 20.0 | 1,914 | 7.0 | 603 | 1,174.6 | 208,804 | 3,654.6 | – 0.4 |
| 1968 | 1,773.7 | 68,625 | 740.2 | 718 | 12.3 | 1,182 | 5.3 | 468 | 1,237.4 | 220,215 | 3,768.7 | + 3.1 |
| 1969 | 1,676.8 | 65,203 | 789.7 | 766 | 9.6 | 916 | 4.6 | 415 | 1,302.3 | 231,160 | 3,783.0 | + 0.4 |
| 1970 | 1,755.3 | 68,803 | 796.3 | 772 | 14.3 | 1,366 | 5.1 | 465 | 1,382.6 | 244,733 | 3,953.4 | + 4.5 |
| 1971 | 1,678.7 | 66,056 | 827.0 | 802 | 8.2 | 779 | 4.8 | 445 | 1,411.8 | 250,293 | 3,930.6 | – 0.6 |
| 1972 | 1,720.3 | 67,766 | 851.3 | 829 | 15.9 | 1,533 | 3.1 | 288 | 1,497.3 | 266,142 | 4,087.8 | + 4.0 |
| 1973 | 1,840.4 | 72,617 | 799.0 | 783 | 14.3 | 1,372 | 3.9 | 361 | 1,496.4 | 266,023 | 4,154.2 | + 1.6 |
| 1974 | 1,672.8 | 67,486 | 732.7 | 716 | 14.5 | 1,393 | 78.1 | 6,998 | 1,443.4 | 256,493 | 3,941.7 | – 5.1 |
| 1975 | 1,686.9 | 68,568 | 666.8 | 654 | 16.4 | 1,576 | 174.8 | 15,869 | 1,322.0 | 236,950 | 3,867.1 | – 1.9 |
| 1976 | 1,709.2 | 69,078 | 727.1 | 714 | 14.7 | 1,416 | 181.4 | 16,425 | 1,466.2 | 262,011 | 4,098.7 | + 6.0 |
| 1977 | 1,565.7 | 64,145 | 681.0 | 668 | 12.6 | 1,205 | 191.9 | 17,821 | 1,553.7 | 276,688 | 4,005.0 | – 2.3 |
| 1978 | 1,537.8 | 62,969 | 684.6 | 674 | 7.9 | 760 | 244.3 | 22,329 | 1,540.9 | 274,989 | 4,016.9 | + 0.3 |
| 1979 | 1,719.9 | 70,175 | 754.2 | 741 | 12.7 | 1,222 | 200.0 | 18,796 | 1,455.1 | 261,051 | 4,141.7 | + 3.1 |
| 1980 | 1,606.2 | 65,725 | 794.4 | 776 | 7.6 | 734 | 131.9 | 12,091 | 1,288.9 | 232,164 | 3,829.0 | – 7.6 |
| 1981 | 1,470.3 | 60,395 | 804.3 | 785 | 6.8 | 660 | 155.7 | 14,276 | 1,183.3 | 214,709 | 3,620.6 | – 5.4 |

[1] *Includes anthracite, bituminous and lignite.*
[2] *Includes industrial and utility production, and net imports of electricity.*
[3] *Excludes non-energy petroleum products. See Appendix A.*

**Note:** Totals may not equal sum of components due to independent rounding.

**Sources:** U.S. Department of Energy, Energy Information Administration, *State Energy Data Report, June 1983.*
American Gas Association, *Gas Facts, 1981.*

## PRIMARY CONSUMPTION OF ENERGY BY FUEL, 1960-1981




Total primary consumption of energy has increased at a compound annual rate of 0.7 percent between 1960 and 1981.

Primary consumption, however, peaked in 1973 at 4,154.2 TBtu and has decreased by 1.7 percent annually over the 1973-1981 period although increases occurred in 1976, 1978, and 1979.

Petroleum consumption peaked in 1977 at 1,553.7 TBtu. In 1972, maximum natural gas consumption occurred at 851.3 TBtu. Coal consumption peaked at 1,840.4 TBtu in 1973.

Energy sources as shares of total primary consumption in 1960 and 1981 are as follows: petroleum's share stabilized at approximately 32.7 percent in both 1960 and 1981; coal decreased from a 49.3 percent share to a 40.6 percent share; natural gas increased from 17.4 percent to 22.2 percent; hydroelectricity decreased from 0.6 percent to 0.2 percent; and nuclear power grew from a negligible share in 1960 to a 4.3 percent share in 1981.

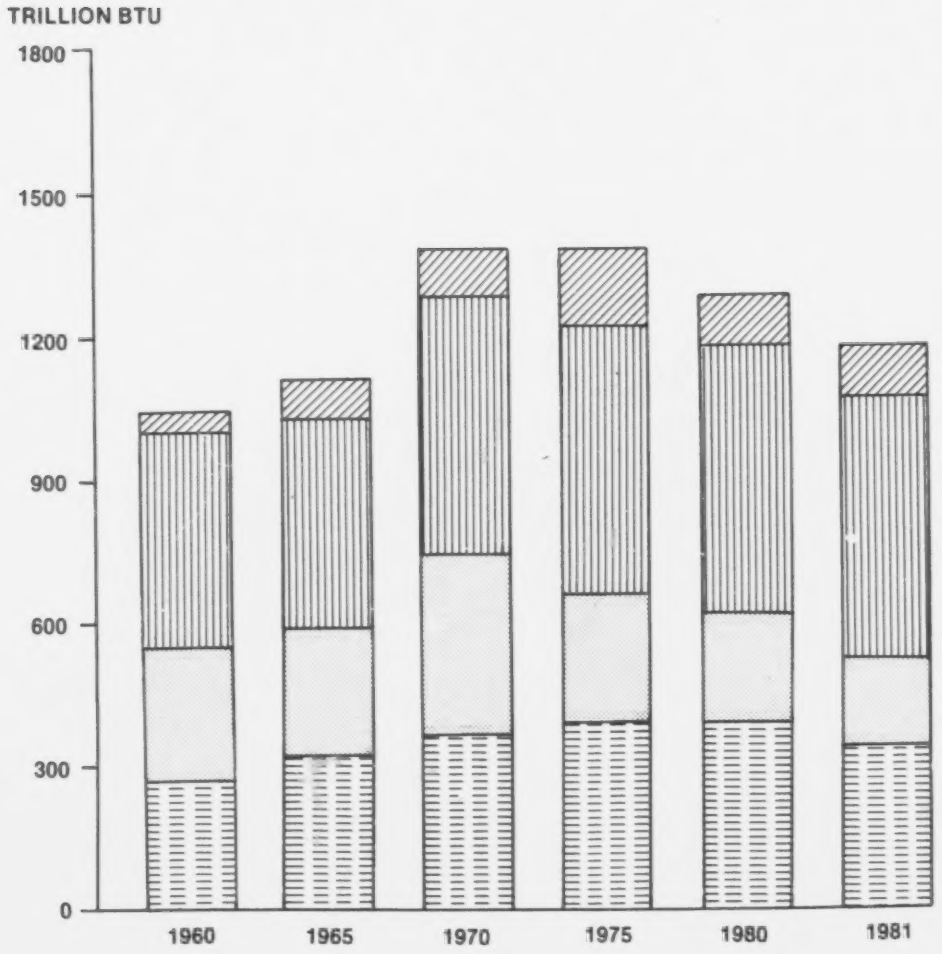
## PRIMARY CONSUMPTION OF REFINED PETROLEUM PRODUCTS, 1960-1981
## PENNSYLVANIA

| | Distillate | | Residual | | Motor Gasoline | | Kerosene | | Aviation Fuels [1] | | LPG [2] | | Total [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels |
| 1960 | 269.5 | 46,266 | 271.5 | 43,189 | 420.8 | 80,104 | 19.9 | 3,508 | 18.7 | 3,602 | 9.4 | 2,334 | 1,009.8 | 179,003 |
| 1961 | 271.5 | 46,659 | 246.6 | 39,227 | 414.7 | 78,939 | 20.5 | 3,616 | 22.3 | 4,261 | 10.2 | 2,545 | 986.1 | 175,247 |
| 1962 | 290.8 | 49,926 | 259.2 | 41,221 | 427.4 | 81,358 | 20.9 | 3,692 | 25.1 | 4,777 | 10.8 | 2,700 | 1,034.2 | 183,674 |
| 1963 | 303.3 | 52,060 | 263.5 | 41,917 | 432.7 | 82,372 | 20.7 | 3,644 | 27.4 | 5,185 | 11.9 | 2,976 | 1,059.5 | 188,154 |
| 1964 | 298.6 | 51,264 | 270.1 | 42,965 | 437.2 | 83,228 | 20.7 | 3,646 | 27.1 | 5,124 | 13.0 | 3,241 | 1,066.7 | 189,468 |
| 1965 | 317.2 | 54,459 | 271.8 | 43,238 | 450.3 | 85,723 | 21.8 | 3,851 | 32.6 | 6,071 | 12.2 | 3,030 | 1,105.9 | 196,372 |
| 1966 | 317.0 | 54,414 | 299.8 | 47,678 | 463.2 | 88,179 | 21.9 | 3,858 | 32.8 | 6,056 | 13.7 | 3,411 | 1,148.4 | 203,596 |
| 1967 | 333.4 | 57,240 | 279.4 | 44,436 | 482.6 | 91,866 | 25.9 | 4,573 | 40.6 | 7,388 | 12.7 | 3,301 | 1,174.6 | 208,804 |
| 1968 | 349.1 | 59,924 | 288.5 | 45,890 | 512.2 | 97,503 | 25.0 | 4,404 | 47.9 | 8,640 | 14.7 | 3,854 | 1,237.4 | 220,215 |
| 1969 | 358.3 | 61,519 | 329.1 | 52,345 | 518.2 | 98,653 | 24.8 | 4,372 | 55.2 | 9,895 | 16.7 | 4,376 | 1,302.3 | 231,160 |
| 1970 | 369.8 | 63,489 | 380.0 | 60,436 | 534.3 | 101,720 | 24.1 | 4,251 | 56.4 | 10,083 | 18.0 | 4,754 | 1,382.6 | 244,733 |
| 1971 | 368.0 | 63,171 | 381.8 | 60,724 | 563.9 | 107,344 | 26.7 | 4,711 | 52.9 | 9,448 | 18.5 | 4,895 | 1,411.8 | 250,293 |
| 1972 | 403.6 | 69,280 | 378.2 | 60,152 | 610.1 | 116,142 | 31.1 | 5,486 | 53.3 | 9,505 | 21.0 | 5,577 | 1,497.3 | 266,142 |
| 1973 | 420.2 | 72,139 | 372.5 | 59,253 | 603.3 | 114,856 | 22.5 | 3,975 | 56.1 | 9,992 | 21.8 | 5,808 | 1,496.4 | 266,023 |
| 1974 | 419.5 | 72,016 | 356.1 | 56,643 | 571.6 | 108,823 | 20.7 | 3,642 | 54.3 | 9,682 | 21.2 | 5,687 | 1,443.4 | 256,493 |
| 1975 | 396.2 | 68,017 | 261.7 | 41,631 | 571.3 | 108,766 | 19.3 | 3,398 | 50.9 | 9,061 | 22.6 | 6,077 | 1,322.0 | 236,950 |
| 1976 | 437.5 | 75,108 | 316.3 | 50,302 | 618.3 | 117,709 | 20.2 | 3,567 | 50.2 | 8,926 | 23.7 | 6,399 | 1,466.2 | 262,011 |
| 1977 | 454.5 | 78,031 | 377.0 | 59,962 | 631.7 | 120,263 | 14.5 | 2,551 | 50.8 | 9,024 | 25.2 | 6,857 | 1,553.7 | 276,688 |
| 1978 | 439.1 | 75,378 | 366.9 | 58,363 | 640.7 | 121,978 | 14.3 | 2,517 | 53.0 | 9,408 | 26.9 | 7,345 | 1,540.9 | 274,989 |
| 1979 | 446.9 | 76,720 | 292.1 | 46,461 | 610.2 | 116,157 | 16.7 | 2,937 | 57.9 | 10,265 | 31.3 | 8,511 | 1,455.1 | 261,051 |
| 1980 | 399.6 | 68,602 | 220.7 | 35,099 | 566.9 | 107,925 | 15.7 | 2,763 | 59.3 | 10,520 | 26.7 | 7,255 | 1,288.9 | 232,164 |
| 1981 | 348.8 | 59,885 | 187.8 | 29,878 | 547.1 | 104,151 | 15.0 | 2,651 | 52.4 | 9,298 | 32.2 | 8,846 | 1,183.3 | 214,709 |

[1] *Includes jet fuel and aviation gasoline.*
[2] *Liquefied petroleum gases include ethane, ethylene, propane, propylene, butane, butylene, butane-propane mixture, ethane-propane mixture, and isobutane.*
[3] *Excludes non-energy petroleum products. See Appendix A.*

**Source:** U.S. Department of Energy, Energy Information Administration, *State Energy Data Report*, June 1983.

## PRIMARY CONSUMPTION OF REFINED PETROLEUM PRODUCTS, 1960-1981
## PENNSYLVANIA




Petroleum product consumption increased at a compound annual rate of 0.8 percent from 1960 through 1981.

Motor gasoline consumption peaked in 1978 at 640.7 TBtu and has decreased by 5.1 percent annually from 1978-1981. Maximum residual consumption occurred in 1971 at 381.8 TBtu and decreased by 6.8 percent annually to 187.8 TBtu in 1981. Distillate consumption rose from 269.5 TBtu in 1960 to a maximum of 454.5 TBtu in 1977, and then declined to 348.8 TBtu in 1981 at a compound annual rate of 6.4 percent.

Total petroleum product consumption in 1981 was 8.2 percent less than in 1980. Residual, distillate and gasoline consumption declined by 14.9 percent, 12.7 percent, and 3.5 percent, respectively.

The gasoline share of total petroleum product consumption increased from 41.7 percent in 1960 to 46.2 percent in 1981. The distillate share increased from 26.6 percent to 29.5 percent while that of residual declined from 26.9 percent in 1960 to 15.9 percent in 1981. The aviation fuel share increased from 1.9 percent in 1960 to 4.4 percent in 1981.

## PRIMARY CONSUMPTION OF ENERGY BY SECTOR, 1960-1981
## PENNSYLVANIA
### Trillion Btu

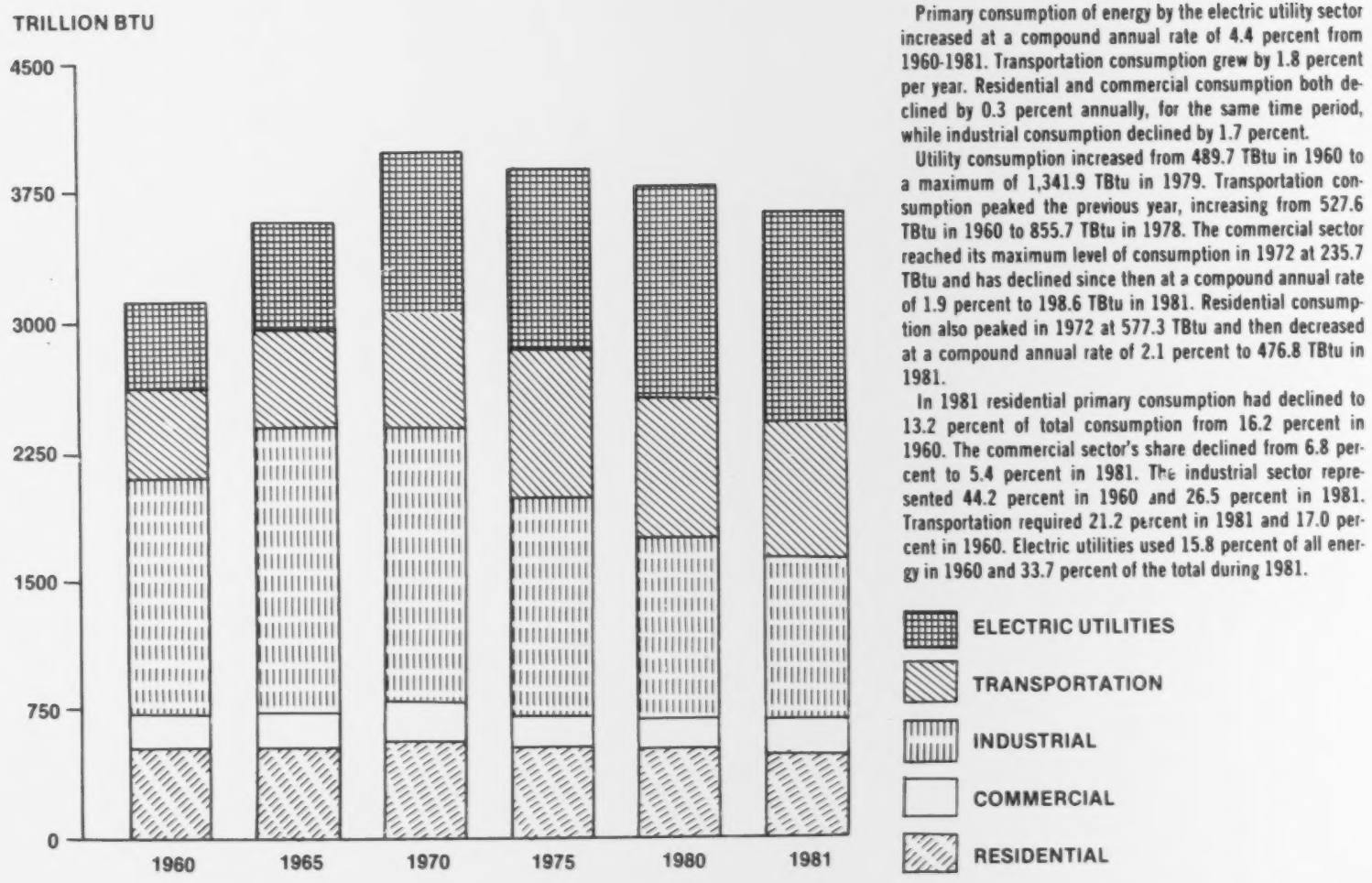
| Year | Residential | Commercial | Industrial | Transportation | Electric Utilities | Total [1] |
|---|---|---|---|---|---|---|
| 1960 | 503.1 | 209.7 | 1,371.5 | 527.6 | 489.7 | 3,101.6 |
| 1961 | 497.9 | 202.7 | 1,286.9 | 507.0 | 492.4 | 2,986.9 |
| 1962 | 515.9 | 202.3 | 1,335.3 | 527.8 | 518.0 | 3,099.3 |
| 1963 | 516.4 | 200.3 | 1,426.0 | 548.9 | 539.9 | 3,231.5 |
| 1964 | 512.4 | 201.3 | 1,582.0 | 560.4 | 585.5 | 3,441.6 |
| 1965 | 516.3 | 204.3 | 1,664.5 | 565.6 | 615.6 | 3,566.3 |
| 1966 | 525.7 | 208.0 | 1,689.7 | 587.2 | 657.0 | 3,667.6 |
| 1967 | 538.8 | 205.4 | 1,605.1 | 622.1 | 683.2 | 3,654.6 |
| 1968 | 547.7 | 207.3 | 1,612.2 | 671.0 | 730.5 | 3,768.7 |
| 1969 | 552.8 | 213.2 | 1,544.1 | 680.8 | 792.1 | 3,783.0 |
| 1970 | 558.8 | 220.3 | 1,580.6 | 709.5 | 884.2 | 3,953.4 |
| 1971 | 568.8 | 229.5 | 1,443.7 | 737.6 | 951.0 | 3,930.6 |
| 1972 | 577.3 | 235.7 | 1,452.5 | 789.2 | 1,033.1 | 4,087.8 |
| 1973 | 561.5 | 232.7 | 1,473.5 | 804.3 | 1,082.2 | 4,154.2 |
| 1974 | 516.2 | 201.4 | 1,384.2 | 774.1 | 1,065.8 | 3,941.7 |
| 1975 | 508.2 | 186.5 | 1,273.8 | 760.2 | 1,138.4 | 3,867.1 |
| 1976 | 545.2 | 216.4 | 1,313.3 | 828.3 | 1,195.5 | 4,098.7 |
| 1977 | 532.3 | 206.4 | 1,195.1 | 846.8 | 1,224.4 | 4,005.0 |
| 1978 | 525.0 | 205.5 | 1,126.3 | 855.7 | 1,304.4 | 4,016.9 |
| 1979 | 515.6 | 188.4 | 1,256.7 | 839.1 | 1,341.9 | 4,141.7 |
| 1980 | 496.5 | 186.6 | 1,054.8 | 807.5 | 1,283.6 | 3,829.0 |
| 1981 | 476.8 | 198.6 | 957.7 | 766.0 | 1,221.5 | 3,620.6 |

[1] *Excludes non-energy petroleum products, electricity sales, and electrical energy losses.*

**Note:** Totals may not equal sum of components due to independent rounding.

**Source:** U.S. Department of Energy, Energy Information Administration, *State Energy Data Report*, June 1983.

## PRIMARY CONSUMPTION OF ENERGY BY SECTOR, 1960-1981
## PENNSYLVANIA




Primary consumption of energy by the electric utility sector increased at a compound annual rate of 4.4 percent from 1960-1981. Transportation consumption grew by 1.8 percent per year. Residential and commercial consumption both declined by 0.3 percent annually, for the same time period, while industrial consumption declined by 1.7 percent.

Utility consumption increased from 489.7 TBtu in 1960 to a maximum of 1,341.9 TBtu in 1979. Transportation consumption peaked the previous year, increasing from 527.6 TBtu in 1960 to 855.7 TBtu in 1978. The commercial sector reached its maximum level of consumption in 1972 at 235.7 TBtu and has declined since then at a compound annual rate of 1.9 percent to 198.6 TBtu in 1981. Residential consumption also peaked in 1972 at 577.3 TBtu and then decreased at a compound annual rate of 2.1 percent to 476.8 TBtu in 1981.

In 1981 residential primary consumption had declined to 13.2 percent of total consumption from 16.2 percent in 1960. The commercial sector's share declined from 6.8 percent to 5.4 percent in 1981. The industrial sector represented 44.2 percent in 1960 and 26.5 percent in 1981. Transportation required 21.2 percent in 1981 and 17.0 percent in 1960. Electric utilities used 15.8 percent of all energy in 1960 and 33.7 percent of the total during 1981.

## SALES OF ELECTRICITY BY SECTOR, 1960-1981
## PENNSYLVANIA

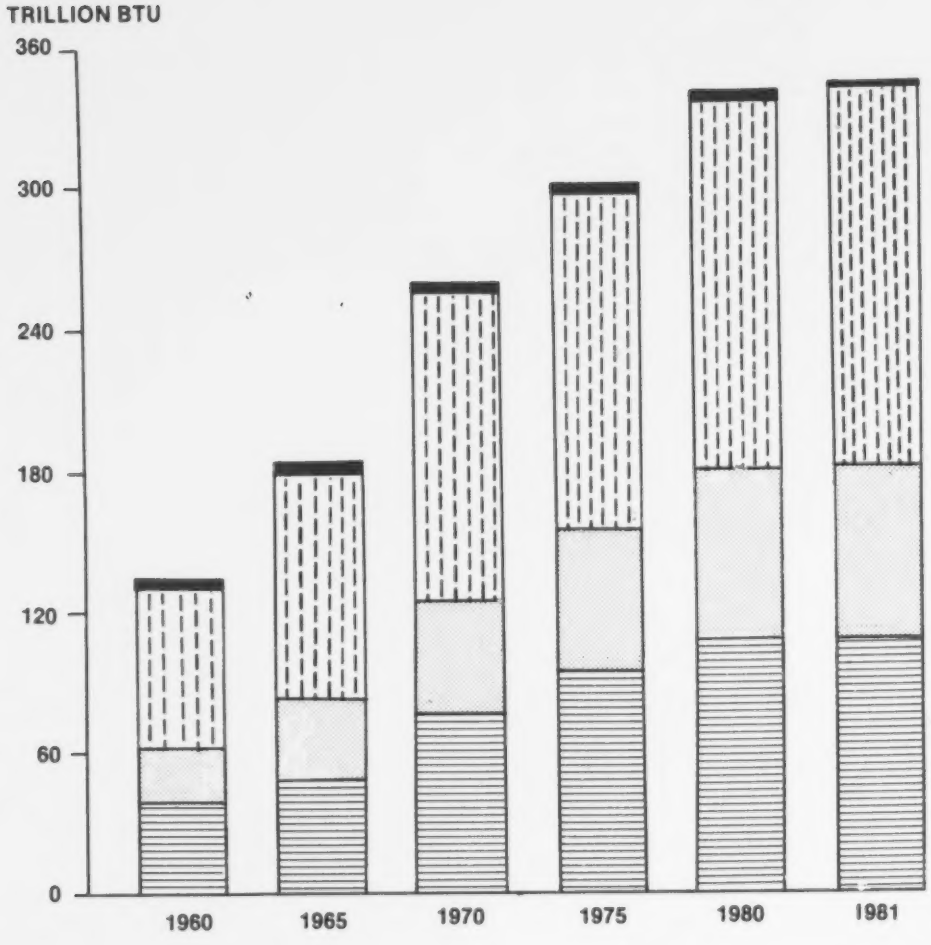
| | Residential | | Commercial | | Industrial | | Transportation | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Trillion Btu | Million Kwh | Trillion Btu | Million Kwh | Trillion Btu | Million Kwh | Trillion Btu | Million Kwh | Trillion Btu | Million wh |
| 1960 | 37.7 | 11,042 | 23.9 | 7,006 | 68.8 | 20,151 | 3.7 | 1,081 | 134.0 | 39,280 |
| 1961 | 37.6 | 11,021 | 25.3 | 7,404 | 70.0 | 20,515 | 3.6 | 1,067 | 136.5 | 40,007 |
| 1962 | 41.4 | 12,122 | 27.2 | 7,971 | 75.6 | 22,163 | 3.8 | 1,106 | 148.0 | 43,362 |
| 1963 | 43.5 | 12,749 | 28.7 | 8,405 | 81.2 | 23,792 | 3.7 | 1,085 | 157.1 | 46,031 |
| 1964 | 46.0 | 13,496 | 30.6 | 8,966 | 90.0 | 26,374 | 3.8 | 1,101 | 170.4 | 49,937 |
| 1965 | 49.6 | 14,535 | 33.0 | 9,682 | 96.7 | 28,343 | 3.7 | 1,075 | 183.0 | 53,635 |
| 1966 | 53.5 | 15,686 | 35.9 | 10,532 | 104.9 | 30,734 | 3.5 | 1,039 | 197.9 | 57,991 |
| 1967 | 58.0 | 17,003 | 37.9 | 11,105 | 107.4 | 31,480 | 3.3 | 978 | 206.7 | 60,566 |
| 1968 | 63.9 | 18,739 | 41.5 | 12,164 | 117.0 | 34,296 | 3.2 | 934 | 225.6 | 66,133 |
| 1969 | 69.8 | 20,467 | 44.8 | 13,121 | 126.9 | 37,201 | 3.2 | 942 | 244.7 | 71,731 |
| 1970 | 76.3 | 22,376 | 48.6 | 14,235 | 130.1 | 38,140 | 3.1 | 916 | 258.2 | 75,667 |
| 1971 | 80.7 | 23,651 | 52.0 | 15,231 | 132.9 | 38,962 | 3.0 | 877 | 268.6 | 78,721 |
| 1972 | 85.1 | 24,954 | 55.6 | 16,285 | 142.2 | 41,676 | 3.0 | 874 | 285.9 | 83,789 |
| 1973 | 91.1 | 26,713 | 59.7 | 17,503 | 153.9 | 45,118 | 2.9 | 853 | 307.7 | 90,187 |
| 1974 | 91.0 | 26,673 | 58.8 | 17,246 | 152.8 | 44,786 | 3.1 | 916 | 305.8 | 89,621 |
| 1975 | 94.6 | 27,724 | 61.7 | 18,097 | 141.0 | 41,317 | 3.1 | 915 | 300.4 | 88,053 |
| 1976 | 98.2 | 28,790 | 64.3 | 18,841 | 148.0 | 43,366 | 3.3 | 964 | 313.8 | 91,961 |
| 1977 | 103.5 | 30,346 | 67.4 | 19,758 | 153.0 | 44,855 | 3.5 | 1,029 | 327.5 | 95,988 |
| 1978 | 105.6 | 30,961 | 69.0 | 20,233 | 156.9 | 45,971 | 3.3 | 968 | 334.8 | 98,133 |
| 1979 | 107.6 | 31,546 | 70.1 | 20,546 | 163.5 | 47,911 | 3.1 | 914 | 344.3 | 100,917 |
| 1980 | 108.6 | 31,831 | 72.3 | 21,179 | 156.8 | 45,942 | 2.8 | 824 | 340.4 | 99,776 |
| 1981 | 107.9 | 31,625 | 74.0 | 21,701 | 159.1 | 46,631 | 2.3 | 670 | 343.4 | 100,627 |

[1] *Includes sales figures for four user sectors: commercial (small light and power), street and highway lighting, other public authorities and interdepartmental.*

**Note:** Totals may not equal sum of components due to independent rounding.

**Source:** Edison Electric Institute, *Statistical Year Book*, (1960-1981).

## SALES OF ELECTRICITY BY SECTOR, 1960-1981
## PENNSYLVANIA




Total sales of electricity increased at a compound annual rate of 4.6 percent between 1960 and 1981, despite annual declines in 1974 and 1975. Residential and commercial sales increased by 5.1 percent and 5.5 percent, respectively, during this period. Industrial sales increased by 4.1 percent while electric sales to the transportation sector decreased by 2.2 percent.

Residential and commercial sales represented 28.1 percent and 17.8 percent, respectively, of total electricity sales in 1960, while in 1981 they represented 31.4 percent and 21.6 percent. Industrial sales constituted 51.3 percent in 1960 and 46.3 percent in 1981. Transportation's share declined from 2.8 percent in 1960 to 0.7 percent in 1981.

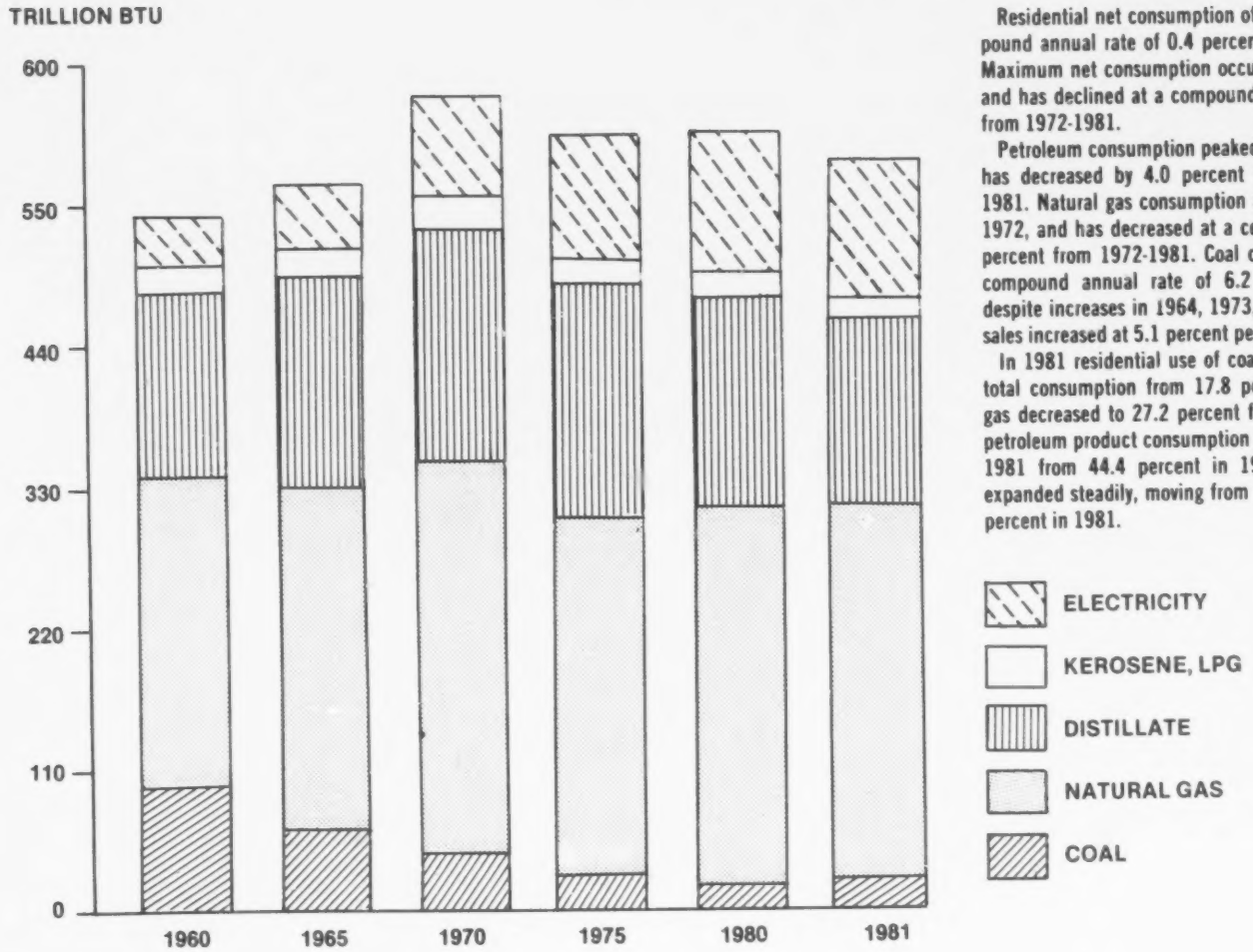
## NET CONSUMPTION OF ENERGY BY THE RESIDENTIAL SECTOR, 1960-1981
## PENNSYLVANIA

| | Coal | | Natural Gas | | Refined Petroleum Products | | | | | | | | Electricity | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Distillate | | Kerosene | | LPG | | Total | | | | |
| Year | Trillion Btu | Thousand Tons | Trillion Btu | Billion Cubic Feet | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Million Kwh | Trillion Btu |
| 1960 | 96.5 | 3,943 | 240.2 | 232 | 146.2 | 25,106 | 15.7 | 2,763 | 4.5 | 1,125 | 166.4 | 28,994 | 37.7 | 11,042 | 540.8 |
| 1961 | 88.3 | 3,593 | 245.6 | 237 | 143.7 | 24,672 | 15.7 | 2,772 | 4.6 | 1,152 | 164.0 | 28,593 | 37.6 | 11,021 | 535.5 |
| 1962 | 78.3 | 3,201 | 253.6 | 245 | 162.5 | 27,896 | 16.4 | 2,899 | 5.0 | 1,258 | 184.0 | 32,053 | 41.4 | 12,122 | 557.3 |
| 1963 | 72.8 | 3,015 | 258.0 | 250 | 163.9 | 28,135 | 16.2 | 2,859 | 5.5 | 1,371 | 185.6 | 32,361 | 43.5 | 12,749 | 559.9 |
| 1964 | 73.7 | 3,056 | 259.8 | 252 | 157.5 | 27,038 | 15.3 | 2,691 | 6.1 | 1,522 | 178.9 | 31,261 | 46.0 | 13,496 | 558.4 |
| 1965 | 66.1 | 2,727 | 263.8 | 256 | 165.4 | 28,391 | 15.6 | 2,753 | 5.4 | 1,348 | 186.4 | 32,493 | 49.6 | 14,535 | 565.9 |
| 1966 | 59.0 | 2,448 | 283.7 | 275 | 160.3 | 27,512 | 16.5 | 2,907 | 6.2 | 1,550 | 183.0 | 31,969 | 53.5 | 15,686 | 579.2 |
| 1967 | 53.3 | 2,255 | 288.8 | 280 | 171.1 | 29,375 | 20.1 | 3,539 | 5.5 | 1,445 | 196.7 | 34,359 | 58.0 | 17,003 | 596.8 |
| 1968 | 49.4 | 2,106 | 294.8 | 286 | 179.0 | 30,728 | 18.9 | 3,333 | 5.6 | 1,468 | 203.5 | 35,526 | 63.9 | 18,739 | 611.6 |
| 1969 | 46.1 | 1,968 | 304.2 | 295 | 176.2 | 30,255 | 19.5 | 3,445 | 6.7 | 1,771 | 202.5 | 35,471 | 69.8 | 20,467 | 622.6 |
| 1970 | 44.4 | 1,888 | 306.2 | 297 | 182.0 | 31,242 | 19.1 | 3,368 | 7.1 | 1,888 | 208.2 | 36,500 | 76.3 | 22,376 | 635.1 |
| 1971 | 44.5 | 1,879 | 313.8 | 304 | 182.8 | 31,383 | 20.7 | 3,650 | 7.0 | 1,865 | 210.5 | 36,897 | 80.7 | 23,651 | 649.5 |
| 1972 | 34.2 | 1,461 | 313.7 | 305 | 197.5 | 33,912 | 24.3 | 4,284 | 7.6 | 2,026 | 229.4 | 40,222 | 85.1 | 24,954 | 662.4 |
| 1973 | 37.3 | 1,506 | 298.4 | 293 | 199.9 | 34,319 | 18.3 | 3,232 | 7.6 | 2,016 | 225.8 | 39,567 | 91.1 | 26,713 | 652.6 |
| 1974 | 30.2 | 1,256 | 278.4 | 272 | 186.0 | 31,931 | 14.3 | 2,528 | 7.3 | 1,946 | 207.6 | 36,403 | 91.0 | 26,673 | 607.2 |
| 1975 | 26.8 | 1,122 | 278.1 | 273 | 184.0 | 31,587 | 11.5 | 2,023 | 7.8 | 2,109 | 203.3 | 35,719 | 94.6 | 27,724 | 602.8 |
| 1976 | 25.9 | 1,075 | 296.0 | 290 | 202.7 | 34,802 | 12.3 | 2,172 | 8.2 | 2,217 | 223.3 | 39,191 | 98.2 | 28,790 | 643.4 |
| 1977 | 25.8 | 1,032 | 282.6 | 277 | 205.0 | 35,199 | 10.4 | 1,836 | 8.5 | 2,300 | 223.9 | 39,338 | 103.5 | 30,346 | 635.8 |
| 1978 | 24.3 | 968 | 290.7 | 286 | 192.8 | 33,102 | 9.4 | 1,661 | 7.8 | 2,116 | 210.0 | 36,879 | 105.6 | 30,961 | 630.6 |
| 1979 | 16.5 | 656 | 293.8 | 289 | 188.7 | 32,391 | 11.6 | 2,040 | 5.1 | 1,379 | 205.3 | 35,809 | 107.6 | 31,546 | 623.2 |
| 1980 | 19.9 | 830 | 295.2 | 288 | 162.2 | 27,838 | 13.4 | 2,362 | 5.8 | 1,589 | 181.4 | 31,789 | 108.6 | 31,831 | 605.1 |
| 1981 | 25.0 | 996 | 292.9 | 286 | 141.0 | 24,202 | 11.3 | 1,992 | 6.7 | 1,827 | 158.9 | 28,022 | 107.9 | 31,625 | 584.7 |

**Note:** Totals may not equal sum of components due to independent rounding.

**Sources:** U.S. Department of Energy, Energy Information Administration, *State Energy Data Report*, June 1983.
Edison Electric Institute, *Statistical Year Book*, (1960-1981).

## NET CONSUMPTION OF ENERGY BY THE RESIDENTIAL SECTOR, 1960-1981
## PENNSYLVANIA




Residential net consumption of energy increased at a compound annual rate of 0.4 percent between 1960 and 1981. Maximum net consumption occurred in 1972 at 662.4 TBtu and has declined at a compound annual rate of 1.4 percent from 1972-1981.

Petroleum consumption peaked in 1972 at 229.4 TBtu and has decreased by 4.0 percent annually to 158.9 TBtu in 1981. Natural gas consumption also reached a maximum in 1972, and has decreased at a compound annual rate of 0.8 percent from 1972-1981. Coal consumption decreased at a compound annual rate of 6.2 percent from 1960-1981, despite increases in 1964, 1973, 1980 and 1981. Electricity sales increased at 5.1 percent per year.

In 1981 residential use of coal dropped to 4.2 percent of total consumption from 17.8 percent in 1960 and natural gas decreased to 27.2 percent from 30.8 percent. However, petroleum product consumption increased to 50.1 percent in 1981 from 44.4 percent in 1960. The use of electricity expanded steadily, moving from 7.0 percent in 1960 to 18.5 percent in 1981.

# NET CONSUMPTION OF ENERGY BY THE COMMERCIAL SECTOR, 1960-1981
# PENNSYLVANIA

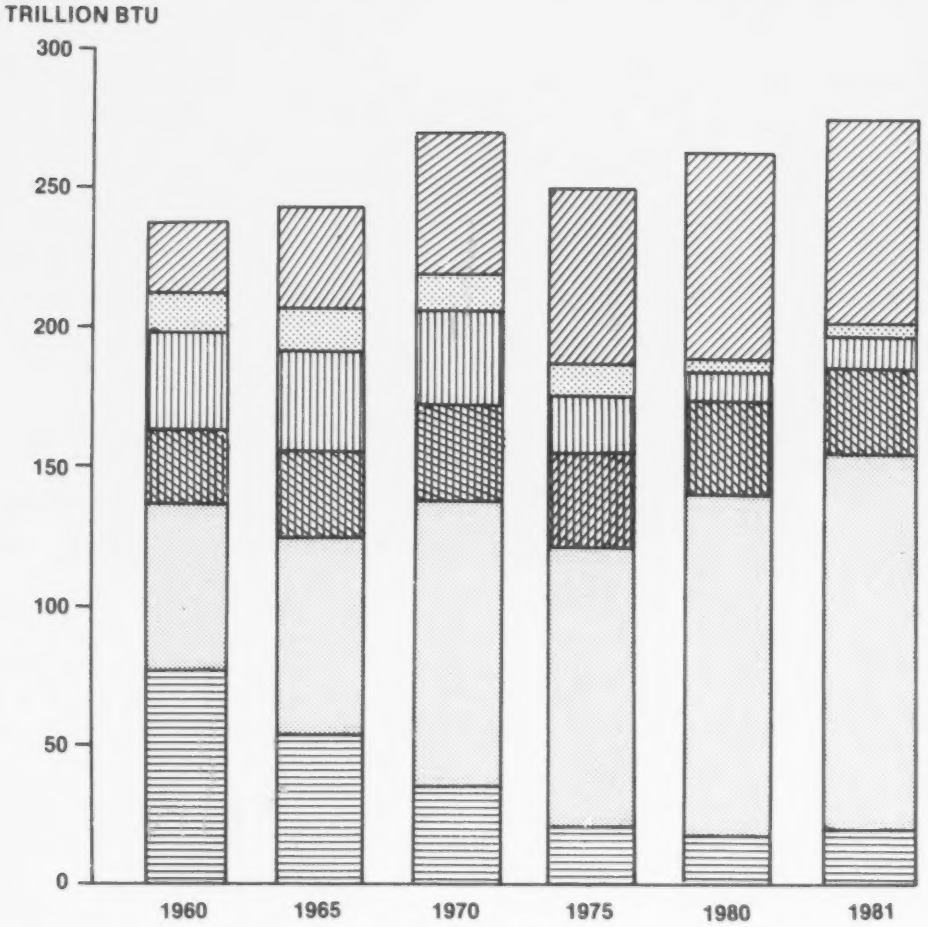
| | Coal | | Natural Gas | | Refined Petroleum Products | | | | | | | | | | | | Electricity | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Distillate | | Residual | | Motor Gasoline | | Kerosene | | LPG | | Total | | | | |
| Year | Trillion Btu | Thousand Tons | Trillion Btu | Billion Cubic Feet | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Million Kwh | Trillion Btu |
| 1960 | 78.2 | 3,147 | 58.1 | 56 | 25.4 | 4,364 | 34.9 | 5,546 | 10.7 | 2,084 | 1.4 | 241 | 0.8 | 198 | 73.4 | 12,433 | 23.9 | 7,006 | 233.6 |
| 1961 | 71.2 | 2,856 | 60.9 | 59 | 25.0 | 4,289 | 31.5 | 5,013 | 11.5 | 2,190 | 1.4 | 242 | 0.8 | 203 | 70.2 | 11,937 | 25.3 | 7,404 | 227.6 |
| 1962 | 63.7 | 2,563 | 64.0 | 62 | 28.2 | 4,849 | 32.4 | 5,155 | 11.6 | 2,211 | 1.4 | 253 | 0.9 | 222 | 74.6 | 12,690 | 27.2 | 7,971 | 229.5 |
| 1963 | 58.2 | 2,371 | 66.0 | 64 | 28.5 | 4,891 | 33.0 | 5,256 | 12.2 | 2,329 | 1.4 | 249 | 1.0 | 241 | 76.1 | 12,966 | 28.7 | 8,405 | 229.0 |
| 1964 | 57.1 | 2,335 | 66.8 | 65 | 27.4 | 4,700 | 34.5 | 5,481 | 13.1 | 2,494 | 1.3 | 235 | 1.1 | 270 | 77.4 | 13,180 | 30.6 | 8,966 | 231.9 |
| 1965 | 52.9 | 2,148 | 69.7 | 68 | 28.7 | 4,935 | 37.1 | 5,899 | 13.6 | 2,585 | 1.4 | 240 | 1.0 | 238 | 81.7 | 13,897 | 33.0 | 9,682 | 237.3 |
| 1966 | 48.4 | 1,971 | 76.2 | 74 | 27.9 | 4,783 | 38.8 | 6,167 | 14.2 | 2,707 | 1.4 | 254 | 1.1 | 273 | 83.4 | 14,184 | 35.9 | 10,532 | 243.9 |
| 1967 | 43.7 | 1,808 | 85.3 | 83 | 29.7 | 5,106 | 30.9 | 4,913 | 13.0 | 2,474 | 1.8 | 309 | 1.0 | 255 | 76.4 | 13,057 | 37.9 | 11,105 | 243.3 |
| 1968 | 39.9 | 1,663 | 90.3 | 88 | 31.1 | 5,342 | 30.6 | 4,875 | 12.7 | 2,413 | 1.6 | 291 | 1.0 | 258 | 77.1 | 13,178 | 41.5 | 12,164 | 248.8 |
| 1969 | 37.4 | 1,560 | 98.7 | 96 | 30.6 | 5,259 | 30.7 | 4,879 | 12.9 | 2,449 | 1.7 | 301 | 1.2 | 313 | 77.1 | 13,201 | 44.8 | 13,121 | 258.0 |
| 1970 | 37.4 | 1,549 | 102.4 | 99 | 31.6 | 5,431 | 33.0 | 5,254 | 12.9 | 2,455 | 1.7 | 294 | 1.3 | 334 | 80.5 | 13,767 | 48.6 | 14,235 | 268.9 |
| 1971 | 37.3 | 1,534 | 113.4 | 110 | 31.8 | 5,455 | 32.9 | 5,239 | 11.1 | 2,110 | 1.8 | 318 | 1.2 | 329 | 78.8 | 13,452 | 52.0 | 15,231 | 281.5 |
| 1972 | 27.6 | 1,152 | 125.8 | 123 | 34.3 | 5,895 | 31.8 | 5,057 | 12.7 | 2,414 | 2.1 | 374 | 1.3 | 357 | 82.3 | 14,097 | 55.6 | 16,285 | 291.3 |
| 1973 | 32.7 | 1,295 | 118.6 | 116 | 34.8 | 5,966 | 33.9 | 5,388 | 9.8 | 1,874 | 1.6 | 282 | 1.3 | 356 | 81.4 | 13,866 | 59.7 | 17,503 | 292.4 |
| 1974 | 24.3 | 997 | 105.0 | 102 | 32.3 | 5,551 | 30.4 | 4,828 | 6.9 | 1,316 | 1.3 | 221 | 1.3 | 343 | 72.1 | 12,259 | 58.8 | 17,246 | 260.2 |
| 1975 | 21.4 | 885 | 101.0 | 99 | 32.0 | 5,491 | 22.8 | 3,630 | 6.9 | 1,310 | 1.0 | 177 | 1.4 | 372 | 64.1 | 10,980 | 61.7 | 18,097 | 248.2 |
| 1976 | 20.8 | 854 | 126.9 | 125 | 36.2 | 6,050 | 25.9 | 4,122 | 5.0 | 961 | 1.1 | 190 | 1.5 | 391 | 68.7 | 11,713 | 64.3 | 18,841 | 280.7 |
| 1977 | 20.2 | 805 | 114.0 | 112 | 35.6 | 6,119 | 27.8 | 4,420 | 6.3 | 1,205 | 0.9 | 160 | 1.5 | 406 | 72.2 | 12,310 | 67.4 | 19,758 | 273.8 |
| 1978 | 24.1 | 961 | 112.4 | 111 | 33.5 | 5,754 | 25.1 | 3,989 | 8.2 | 1,564 | 0.8 | 145 | 1.4 | 373 | 69.0 | 11,826 | 69.0 | 20,233 | 274.5 |
| 1979 | 15.2 | 604 | 113.5 | 111 | 32.8 | 5,631 | 19.9 | 3,165 | 5.1 | 975 | 1.0 | 178 | 0.9 | 243 | 59.7 | 10,192 | 70.1 | 20,546 | 258.5 |
| 1980 | 17.8 | 732 | 121.3 | 118 | 34.1 | 5,858 | 9.6 | 1,521 | 1.6 | 313 | 1.1 | 193 | 1.0 | 280 | 47.5 | 8,165 | 72.2 | 21,179 | 258.8 |
| 1981 | 21.0 | 838 | 131.8 | 129 | 30.1 | 5,160 | 10.0 | 1,590 | 3.5 | 669 | 1.0 | 183 | 1.2 | 322 | 45.8 | 7,925 | 74.0 | 21,701 | 272.6 |

[1] *Includes commercial, government and other federal buildings.*

**Note:** Totals may not equal sum of components due to independent rounding.

**Sources:** U.S. Department of Energy, Energy Information Administration, *State Energy Data Report*, June 1983.
Edison Electric Institute, *Statistical Year Book*, (1960-1981).

## NET CONSUMPTION OF ENERGY BY THE COMMERCIAL SECTOR, 1960-1981
## PENNSYLVANIA




Net commercial consumption of energy increased at a compound annual rate of 0.7 percent from 1960-1981. Maximum net consumption occurred in 1973 at 292.4 TBtu and has declined at a compound annual rate of 0.9 percent from 1973-1981.

Peak petroleum consumption occurred in 1966 at 83.4 TBtu and has declined by 3.9 percent annually since then to 45.8 TBtu in 1981. Natural gas consumption reached a maximum of 131.8 TBtu in 1981. Coal consumption decreased from 1960-1981 at an average rate of 6.1 percent per year. Electricity sales increased at an average rate of 5.5 percent per year.

Patterns of energy usage in the commercial sector between 1960 and 1981 constituted increased shares of natural gas and electricity. Natural gas rose from 24.9 percent to 48.3 percent, while electricity increased 10.2 percent to 27.1 percent. Petroleum claimed 31.4 percent in 1960 and 16.8 percent in 1981. Coal declined from 33.5 percent to 7.7 percent for the same time period.

ELECTRICITY
GASOLINE, LPG
RESIDUAL
DISTILLATE
NATURAL GAS
COAL

# NET CONSUMPTION OF ENERGY BY THE INDUSTRIAL SECTOR, 1960-1981
# PENNSYLVANIA

| | Coal | | Natural Gas | | Refined Petroleum Products | | | | | | | | | | | | Hydro Electric Power | | Electricity | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Distillate | | Residual | | Motor Gasoline | | Kerosene | | LPG | | Total[1] | | | | | | |
| Year | Trillion Btu | Thousand Tons | Trillion Btu | Billion Cubic Feet | Trillion Btu | Thousand Barrels | Trillion Btu | Thousands Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Million Kwh | Trillion Btu | Million Kwh | Trillion Btu |
| 1960 | 898.7 | 33,882 | 220.0 | 213 | 50.4 | 8,647 | 187.7 | 29,863 | 7.6 | 1,455 | 2.9 | 503 | 4.0 | 998 | 252.6 | 41,466 | 0.2 | 16 | 68.8 | 20,151 | 1,440.3 |
| 1961 | 820.0 | 30,944 | 225.4 | 218 | 52.7 | 9,049 | 172.0 | 27,365 | 8.5 | 1,613 | 3.4 | 601 | 4.7 | 1,180 | 241.3 | 39,808 | 0.2 | 17 | 70.0 | 20,515 | 1,356.9 |
| 1962 | 853.5 | 32,218 | 233.5 | 226 | 56.2 | 9,651 | 175.4 | 27,900 | 8.6 | 1,643 | 3.1 | 540 | 4.8 | 1,201 | 248.1 | 40,935 | 0.2 | 15 | 75.6 | 22,163 | 1,410.9 |
| 1963 | 918.8 | 34,657 | 258.6 | 251 | 59.3 | 10,184 | 172.9 | 27,507 | 7.9 | 1,507 | 3.0 | 535 | 5.4 | 1,342 | 248.5 | 41,075 | 0.1 | 14 | 81.2 | 23,792 | 1,507.2 |
| 1964 | 1,051.1 | 39,627 | 278.2 | 270. | 58.6 | 10,067 | 176.3 | 28,048 | 7.9 | 1,510 | 4.1 | 720 | 5.6 | 1,407 | 252.5 | 41,752 | 0.2 | 15 | 90.0 | 26,374 | 1,672.0 |
| 1965 | 1,098.7 | 41,309 | 294.4 | 285 | 67.8 | 11,641 | 185.0 | 29,434 | 7.8 | 1,480 | 4.9 | 858 | 5.7 | 1,410 | 271.2 | 44,823 | 0.2 | 15 | 96.7 | 28,343 | 1,761.2 |
| 1966 | 1,095.0 | 41,163 | 316.7 | 307 | 67.5 | 11,582 | 192.8 | 30,670 | 7.3 | 1,392 | 4.0 | 697 | 6.2 | 1,550 | 277.8 | 45,891 | 0.2 | 18 | 104.9 | 30,734 | 1,794.6 |
| 1967 | 1,051.9 | 39,633 | 299.2 | 290 | 69.2 | 11,888 | 167.6 | 26,651 | 6.9 | 1,318 | 4.1 | 725 | 6.0 | 1,566 | 253.8 | 42,148 | 0.2 | 15 | 107.4 | 31,480 | 1,712.5 |
| 1968 | 1,039.8 | 39,106 | 326.3 | 316 | 62.0 | 10,650 | 164.7 | 26,191 | 6.9 | 1,322 | 4.4 | 780 | 8.0 | 2,100 | 246.0 | 41,043 | 0.1 | 14 | 117.0 | 34,296 | 1,729.2 |
| 1969 | 950.0 | 35,705 | 353.4 | 343 | 63.0 | 10,822 | 158.5 | 25,218 | 6.8 | 1,289 | 3.6 | 627 | 8.6 | 2,248 | 240.5 | 40,204 | 0.2 | 15 | 126.9 | 37,201 | 1,671.0 |
| 1970 | 981.2 | 36,780 | 350.5 | 340 | 59.4 | 10,196 | 170.6 | 27,132 | 6.2 | 1,181 | 3.3 | 589 | 9.3 | 2,471 | 248.8 | 41,569 | 0.1 | 12 | 130.1 | 38,140 | 1,710.7 |
| 1971 | 831.2 | 30,841 | 361.0 | 350 | 57.6 | 9,894 | 172.6 | 27,448 | 7.0 | 1,327 | 4.2 | 743 | 10.0 | 2,641 | 251.4 | 42,053 | 0.1 | 6 | 132.9 | 38,962 | 1,576.6 |
| 1972 | 817.0 | 30,484 | 377.9 | 368 | 59.7 | 10,256 | 175.3 | 27,881 | 6.1 | 1,153 | 4.7 | 828 | 11.8 | 3,128 | 257.6 | 43,246 | —[2] | 1 | 142.2 | 41,676 | 1,594.7 |
| 1973 | 840.5 | 31,402 | 356.6 | 350 | 67.4 | 11,572 | 187.7 | 29,864 | 6.0 | 1,142 | 2.6 | 460 | 12.6 | 3,364 | 276.4 | 46,402 | —[2] | 1 | 153.9 | 45,118 | 1,627.4 |
| 1974 | 796.3 | 30,576 | 319.9 | 312 | 66.2 | 11,362 | 178.2 | 28,339 | 6.1 | 1,167 | 5.1 | 894 | 12.4 | 3,324 | 268.0 | 45,086 | —[2] | 1 | 152.8 | 44,786 | 1,537.0 |
| 1975 | 777.2 | 30,209 | 268.5 | 263 | 64.3 | 11,033 | 137.9 | 21,941 | 5.8 | 1,098 | 6.8 | 1,198 | 13.1 | 3,534 | 228.1 | 38,848 | —[2] | 1 | 141.0 | 41,317 | 1,414.8 |
| 1976 | 772.8 | 29,978 | 281.8 | 277 | 73.3 | 12,581 | 159.0 | 25,286 | 5.7 | 1,093 | 6.8 | 1,206 | 13.8 | 3,723 | 258.7 | 43,905 | —[2] | 1 | 148.0 | 43,366 | 1,461.3 |
| 1977 | 656.6 | 26,134 | 260.4 | 256 | 80.8 | 13,872 | 173.7 | 27,630 | 5.4 | 1,022 | 3.1 | 555 | 15.0 | 4,075 | 278.1 | 47,166 | —[2] | 0 | 153.0 | 44,855 | 1,348.1 |
| 1978 | 625.5 | 24,948 | 256.1 | 252 | 73.3 | 12,583 | 145.4 | 23,133 | 4.4 | 830 | 4.0 | 711 | 17.6 | 4,791 | 244.7 | 42,048 | —[2] | 1 | 156.9 | 45,971 | 1,283.2 |
| 1979 | 696.7 | 27,796 | 318.3 | 313 | 88.8 | 15,239 | 117.8 | 18,744 | 5.8 | 1,108 | 4.1 | 719 | 25.2 | 6,838 | 241.7 | 42,648 | —[2] | 1 | 163.5 | 47,911 | 1,420.2 |
| 1980 | 548.8 | 21,945 | 344.7 | 337 | 64.8 | 11,128 | 72.6 | 11,555 | 3.1 | 586 | 1.2 | 208 | 19.6 | 5,323 | 161.3 | 28,800 | —[2] | 1 | 156.8 | 45,942 | 1,211.6 |
| 1981 | 475.2 | 19,033 | 341.6 | 333 | 58.7 | 10,081 | 48.9 | 7,777 | 6.4 | 1,218 | 2.7 | 476 | 24.2 | 6,641 | 140.9 | 26,193 | —[2] | 1 | 159.1 | 46,631 | 1,116.8 |

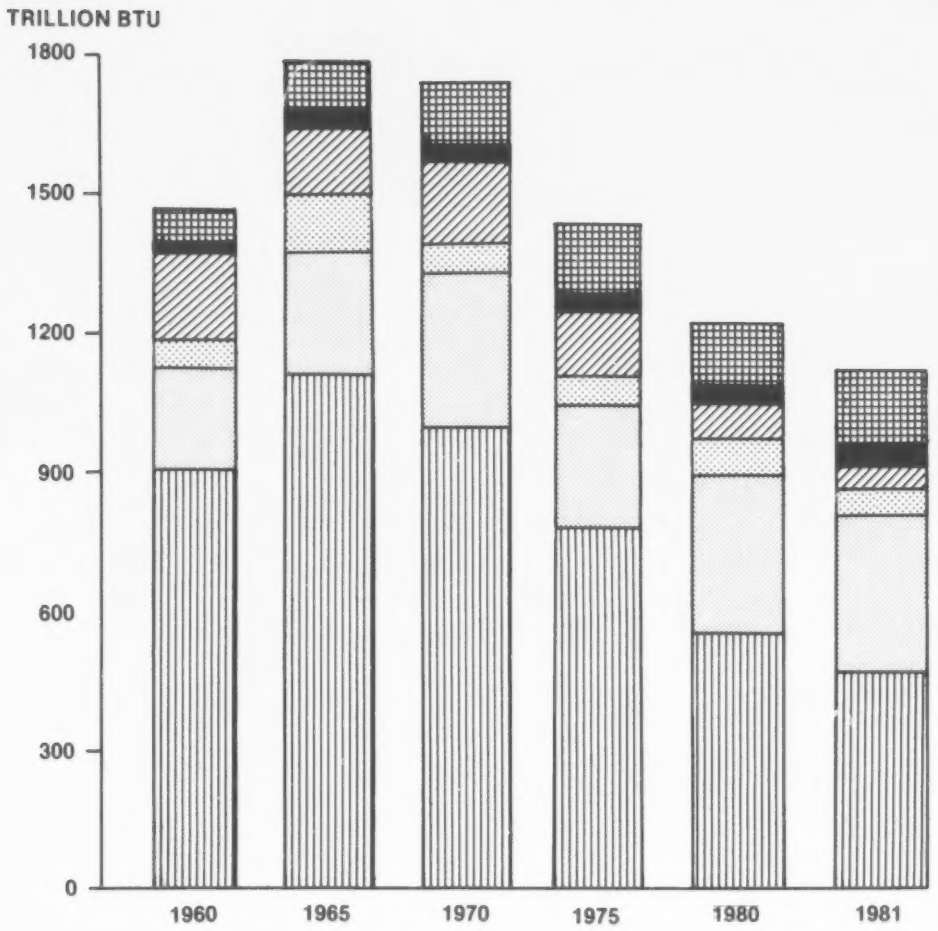
[1] *Totals include the following quantities of jet fuel consumption: 1975 — 0.2 TBtu, 44 thousand bbls; 1976 — 0.1 TBtu, 16 thousand bbls.; 1977 — 0.1 TBtu, 12 thousand bbls.*

[2] *Represents small, non-zero value.*

**Note:** Totals may not equal sum of components due to independent rounding.

**Sources:** U.S. Department of Energy, Energy Information Administration, *State Energy Data Report*, June 1983.
Edison Electric Institute, *Statistical Year Book*, (1960-1981).

## NET CONSUMPTION OF ENERGY BY THE INDUSTRIAL SECTOR, 1960-1981
## PENNSYLVANIA




Net industrial consumption of energy peaked in 1966 at 1794.6 TBtu and has decreased at a compound annual rate of 3.1 percent since 1966 to 1116.8 TBtu in 1981.

Maximum petroleum consumption occurred in 1977 at 278.1 TBtu and has decreased by 15.6 percent annually since then. Natural gas consumption peaked in 1972 at 377.9 TBtu, declined through 1978, and then climbed to 341.6 TBtu in 1981. Coal usage reached its maximum in 1965 at 1,098.7 TBtu and has declined by 5.1 percent per year through 1981. Electricity consumption increased by 4.1 percent annually between 1960 and 1981.

In 1981 the proportion of total net industrial consumption was greater for natural gas and electricity than in 1960. The energy use pattern included a steadily increasing share of electricity (from 4.8 to 14.2 percent) and an increasing natural gas share (from 15.3 to 30.6 percent). The use of petroleum declined from 17.5 percent in 1960 to 12.6 percent in 1981. Coal's share of net consumption decreased from 62.4 percent to 42.6 percent during that period.

ELECTRICITY

GASOLINE, KEROSENE, LPG

RESIDUAL

DISTILLATE

NATURAL GAS

COAL

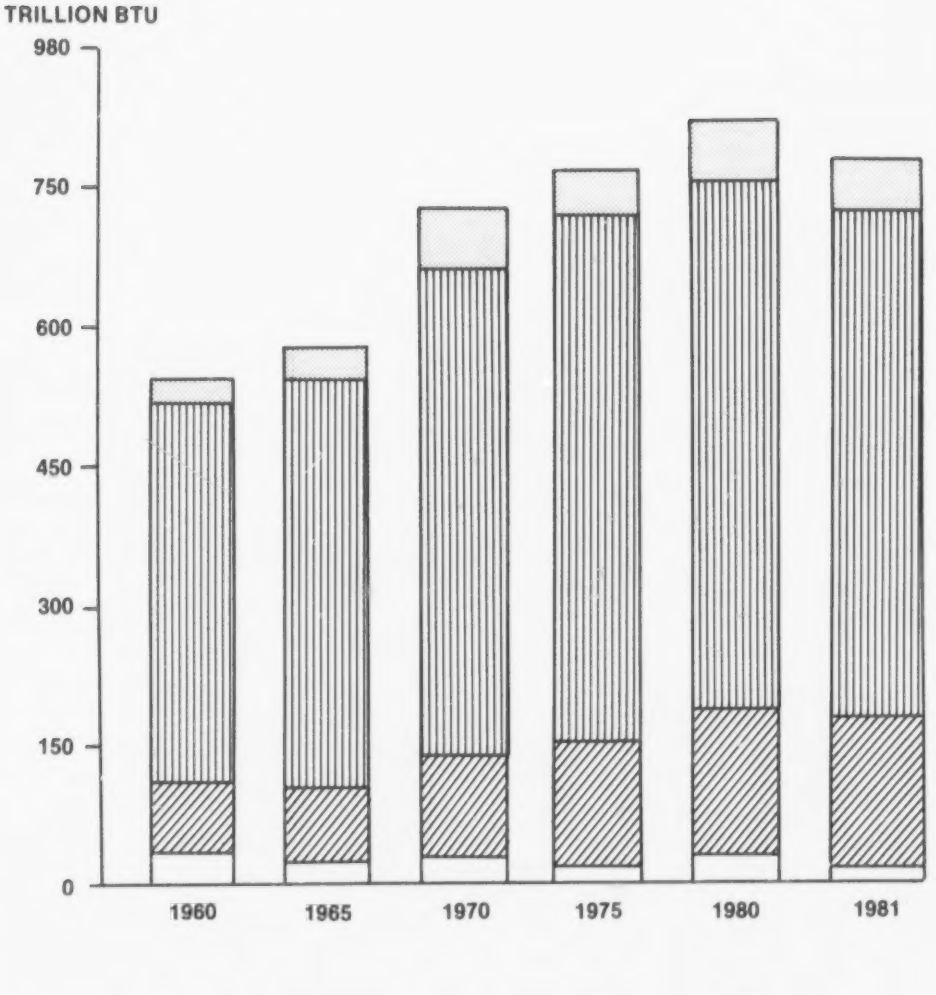
# NET CONSUMPTION OF ENERGY BY THE TRANSPORTATION SECTOR, 1960-1981
## PENNSYLVANIA

| | | | | | Refined Petroleum Products | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coal[1] | | Natural Gas | | Distillate | | Residual | | Motor Gasoline | | Aviation Fuels[2] | | LPG | | Total | | Electricity | | Total |
| Year | Trillion Btu | Thousand Tons | Trillion Btu | Billion Cubic Feet | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Million Kwh | Trillion Btu |
| 1960 | 14.8 | 554 | 15.6 | 15 | 44.6 | 7,664 | 31.6 | 5,033 | 402.2 | 76,565 | 18.7 | 3,602 | 0.1 | 14 | 497.2 | 92,878 | 3.7 | 1,081 | 531.3 |
| 1961 | 3.6 | 133 | 13.1 | 13 | 47.5 | 8,161 | 25.7 | 4,082 | 394.7 | 75,136 | 22.3 | 4,261 | 0.1 | 13 | 490.3 | 91,653 | 3.6 | 1,067 | 510.6 |
| 1962 | 3.3 | 123 | 15.7 | 15 | 41.2 | 7,080 | 35.3 | 5,617 | 407.1 | 77,504 | 25.1 | 4,777 | 0.1 | 20 | 508.8 | 94,998 | 3.8 | 1,106 | 531.6 |
| 1963 | 3.3 | 123 | 17.4 | 17 | 48.6 | 8,345 | 39.5 | 6,290 | 412.6 | 78,536 | 27.4 | 5,185 | 0.1 | 26 | 528.2 | 98,382 | 3.7 | 1,085 | 552.6 |
| 1964 | 3.7 | 139 | 18.8 | 18 | 52.3 | 8,979 | 42.2 | 6,718 | 416.2 | 79,225 | 27.1 | 5,124 | 0.1 | 32 | 537.9 | 100,078 | 3.8 | 1,101 | 564.2 |
| 1965 | 3.5 | 129 | 20.0 | 19 | 51.8 | 8,900 | 28.6 | 4,554 | 429.0 | 81,658 | 32.6 | 6,071 | 0.1 | 33 | 542.1 | 101,216 | 3.7 | 1,075 | 569.3 |
| 1966 | 3.1 | 117 | 21.7 | 21 | 55.5 | 9,529 | 32.2 | 5,129 | 441.7 | 84,080 | 32.8 | 6,056 | 0.2 | 38 | 562.4 | 104,832 | 3.5 | 1,039 | 590.7 |
| 1967 | 2.4 | 91 | 24.4 | 24 | 56.0 | 9,608 | 35.9 | 5,716 | 462.7 | 88,074 | 40.6 | 7,388 | 0.1 | 34 | 595.3 | 110,820 | 3.3 | 978 | 625.4 |
| 1968 | 2.2 | 82 | 24.2 | 24 | 67.6 | 11,610 | 36.4 | 5,789 | 492.6 | 93,768 | 47.9 | 8,640 | 0.1 | 32 | 644.6 | 119,839 | 3.2 | 934 | 674.2 |
| 1969 | 1.5 | 58 | 26.0 | 25 | 70.3 | 12,071 | 29.0 | 4,618 | 498.6 | 94,914 | 55.2 | 9,895 | 0.2 | 44 | 653.3 | 121,542 | 3.2 | 942 | 684.0 |
| 1970 | 1.5 | 57 | 27.5 | 27 | 73.8 | 12,662 | 34.9 | 5,548 | 515.2 | 98,084 | 56.4 | 10,083 | 0.2 | 59 | 680.5 | 126,436 | 3.1 | 916 | 712.6 |
| 1971 | 1.1 | 39 | 28.8 | 28 | 70.9 | 12,164 | 37.9 | 6,024 | 545.8 | 103,908 | 52.9 | 9,448 | 0.2 | 60 | 707.7 | 131,604 | 3.0 | 877 | 740.6 |
| 1972 | 0.8 | 30 | 28.3 | 28 | 84.4 | 14,488 | 32.1 | 5,109 | 591.4 | 112,575 | 52.0 | 9,285 | 0.2 | 66 | 760.1 | 141,523 | 3.0 | 874 | 792.2 |
| 1973 | 0.6 | 22 | 22.8 | 22 | 98.2 | 16,854 | 39.7 | 6,315 | 587.5 | 111,839 | 55.2 | 9,834 | 0.3 | 73 | 780.9 | 144,915 | 2.9 | 853 | 807.2 |
| 1974 | 0.4 | 15 | 21.4 | 21 | 101.8 | 17,478 | 38.0 | 6,048 | 558.6 | 106,340 | 53.6 | 9,553 | 0.3 | 75 | 752.3 | 139,494 | 3.1 | 916 | 777.2 |
| 1975 | 0.1 | 5 | 18.1 | 18 | 96.5 | 16,566 | 36.4 | 5,788 | 558.7 | 106,358 | 50.2 | 8,938 | 0.2 | 62 | 742.0 | 137,712 | 3.1 | 915 | 763.3 |
| 1976 | 0.1 | 2 | 22.0 | 22 | 109.2 | 18,742 | 39.1 | 6,227 | 607.5 | 115,655 | 50.1 | 8,910 | 0.3 | 68 | 806.2 | 149,602 | 3.3 | 964 | 831.6 |
| 1977 | –[3] | 2 | 23.7 | 23 | 112.2 | 19,258 | 39.9 | 6,346 | 620.0 | 118,036 | 50.7 | 9,012 | 0.3 | 72 | 823.2 | 152,724 | 3.5 | 1,029 | 850.3 |
| 1978 | 0.0 | 0 | 24.9 | 24 | 118.0 | 20,260 | 31.5 | 5,007 | 628.2 | 119,584 | 52.9 | 9,395 | 0.2 | 64 | 830.8 | 154,310 | 3.3 | 968 | 859.0 |
| 1979 | 0.0 | 0 | 26.7 | 26 | 125.2 | 21,501 | 29.9 | 4,755 | 599.2 | 114,074 | 57.9 | 10,265 | 0.2 | 51 | 812.4 | 150,646 | 3.1 | 914 | 842.2 |
| 1980 | 0.0 | 0 | 30.2 | 29 | 125.5 | 21,539 | 30.2 | 4,796 | 562.2 | 107,026 | 59.3 | 10,520 | 0.2 | 62 | 777.3 | 143,943 | 2.8 | 824 | 810.3 |
| 1981 | 0.0 | 0 | 34.6 | 34 | 109.0 | 18,709 | 32.6 | 5,177 | 537.2 | 102,264 | 52.4 | 9,296 | 0.2 | 56 | 731.4 | 135,502 | 2.3 | 670 | 768.3 |

[1] *No anthracite is consumed by the transportation sector.*
[2] *Includes jet fuel and aviation gasoline.*
[3] *Represents small, non-zero value.*

**Note:** Totals may not equal sum of components due to independent rounding.
**Sources:** U.S. Department of Energy, Energy Information Administration, *State Energy Data Report*, June 1983.
Edison Electric Institute, *Statistical Year Book*, (1960-1981).

## NET CONSUMPTION OF ENERGY BY THE TRANSPORTATION SECTOR, 1960-1981
## PENNSYLVANIA




Net consumption of energy by the transportation sector increased from 1960 at a compound annual rate of 2.7 percent to 859.0 TBtu in 1978. Consumption has decreased from 1978 at a compound annual rate of 3.7 percent to 768.3 TBtu in 1981.

Petroleum accounted for 93.6 percent of the sector's energy consumption in 1960 and 95.2 percent in 1981. Petroleum consumption increased at a compound annual rate of 2.9 percent from 1960 to the peak consumption level of 830.8 TBtu in 1978. Motor gasoline, which represents the largest portion of refined petroleum products consumed by the transportation sector, also reached its maximum in 1978. Gasoline registered an increase of 2.5 percent annually between 1960 and 1978 and has declined by 5.1 percent per year since 1978. Aviation fuel consumption increased at 5.1 percent annually throughout the twenty-one year period, rising from 18.7 TBtu in 1960 to 52.4 TBtu in 1981.

Gasoline consumption represented 75.7 percent of total transportation requirements in 1960 and 69.9 percent in 1981. Aviation fuels constituted 3.5 percent of the total in 1960 and 6.8 percent in 1981. Distillate fuel oil represented 8.4 percent of the total consumption in 1960 and 14.2 percent in 1981. The residual fuel oil share was 5.9 percent in 1960 and 4.2 percent in 1981.

Coal consumption, which represented 2.8 percent of total net consumption in 1960, decreased from 14.8 TBtu in 1960 to a zero consumption level in 1981. Maximum natural gas consumption occurred in 1981, increasing by 3.9 percent annually.

In 1960, natural gas and electricity represented 2.9 percent and 0.7 percent, respectively, of total net consumption by the transportation sector. In 1981 the respective shares were 4.5 percent and 0.3 percent, respectively.

## PRIMARY CONSUMPTION OF ENERGY BY THE ELECTRIC UTILITY SECTOR, 1960-1981
## PENNSYLVANIA

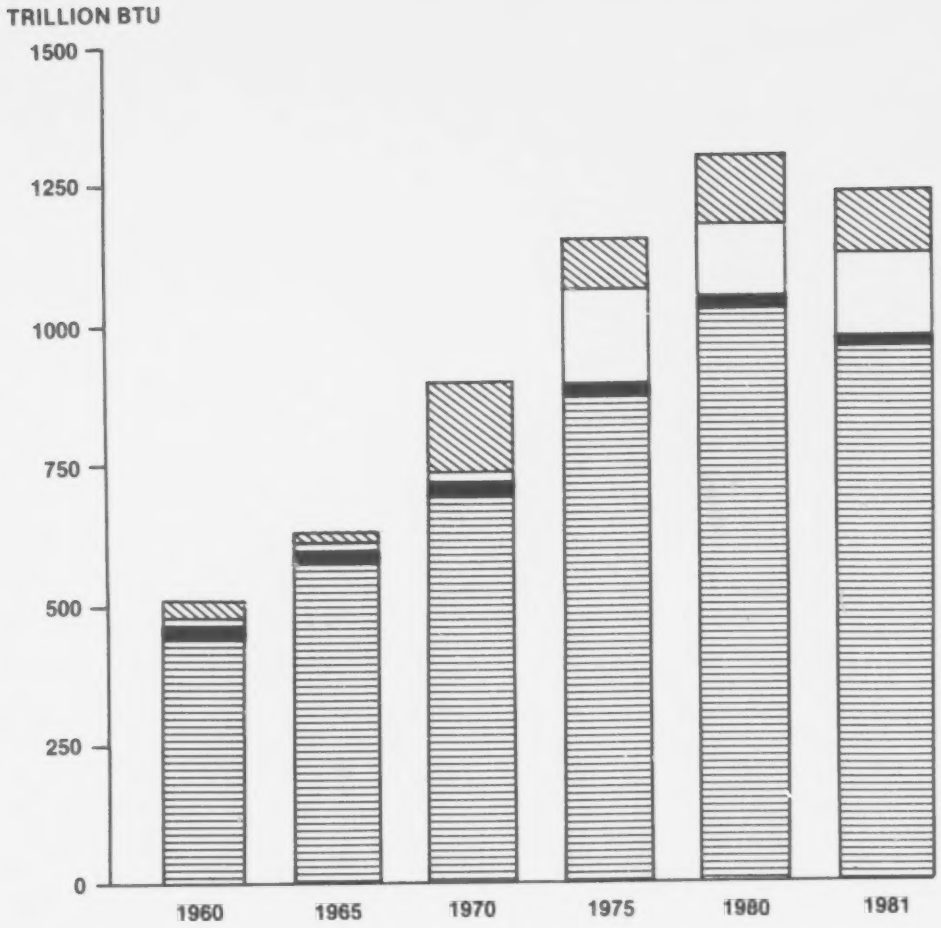
| | Coal | | Natural Gas | | Hydro-Electric Power [1] | | Nuclear Power | | Refined Petroleum Products | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Heavy Oil [2] | | Light Oil [3] | | Total | | |
| Year | Trillion Btu | Thousand Tons | Trillion Btu | Billion Cubic Feet | Trillion Btu | Million Kwh | Trillion Btu | Million Kwh | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu | Thousand Barrels | Trillion Btu |
| 1960 | 441.3 | 18,062 | 6.2 | 6 | 19.5 | 1,810 | 2.7 | 230 | 17.3 | 2,747 | 2.8 | 485 | 20.1 | 3,232 | 489.7 |
| 1961 | 450.2 | 18,348 | 2.7 | 3 | 15.7 | 1,472 | 3.5 | 305 | 17.4 | 2,767 | 2.8 | 488 | 20.2 | 3,255 | 492.4 |
| 1962 | 477.8 | 19,423 | 2.0 | 2 | 15.9 | 1,504 | 3.7 | 320 | 16.0 | 2,549 | 2.6 | 450 | 18.6 | 2,998 | 518.0 |
| 1963 | 497.2 | 20,138 | 4.2 | 4 | 13.3 | 1,266 | 4.2 | 355 | 18.0 | 2,864 | 2.9 | 505 | 21.0 | 3,370 | 539.9 |
| 1964 | 547.2 | 22,154 | 4.9 | 5 | 13.3 | 1,267 | 0.3 | 25 | 17.1 | 2,719 | 2.8 | 480 | 19.9 | 3,198 | 585.5 |
| 1965 | 572.5 | 23,182 | 1.3 | 1 | 13.7 | 1,313 | 3.7 | 313 | 21.1 | 3,351 | 3.4 | 591 | 24.5 | 3,943 | 615.6 |
| 1966 | 593.0 | 24,146 | 1.2 | 1 | 14.8 | 1,425 | 6.1 | 525 | 35.9 | 5,713 | 5.9 | 1,008 | 41.8 | 6,721 | 657.0 |
| 1967 | 601.6 | 24,637 | 2.5 | 2 | 19.8 | 1,899 | 7.0 | 603 | 45.0 | 7,157 | 7.4 | 1,263 | 52.4 | 8,420 | 683.2 |
| 1968 | 642.5 | 26,414 | 4.5 | 4 | 12.1 | 1,168 | 5.3 | 468 | 56.8 | 9,035 | 9.3 | 1,594 | 66.1 | 10,630 | 730.5 |
| 1969 | 641.7 | 26,473 | 7.4 | 7 | 9.4 | 902 | 4.6 | 415 | 110.8 | 17,630 | 18.1 | 3,111 | 129.0 | 20,741 | 792.1 |
| 1970 | 690.8 | 29,141 | 9.6 | 9 | 14.2 | 1,354 | 5.1 | 465 | 141.5 | 22,502 | 23.1 | 3,959 | 164.5 | 26,460 | 884.2 |
| 1971 | 764.7 | 32,238 | 10.0 | 10 | 8.1 | 772 | 4.8 | 445 | 138.4 | 22,013 | 24.9 | 4,276 | 163.3 | 26,289 | 951.0 |
| 1972 | 840.7 | 35,053 | 5.6 | 5 | 15.9 | 1,533 | 3.1 | 288 | 139.0 | 22,105 | 28.8 | 4,949 | 167.8 | 27,053 | 1,033.1 |
| 1973 | 929.4 | 38,794 | 2.6 | 3 | 14.2 | 1,371 | 3.9 | 361 | 111.2 | 17,686 | 20.9 | 3,586 | 132.1 | 21,272 | 1,082.2 |
| 1974 | 821.7 | 35,052 | 8.0 | 8 | 14.5 | 1,392 | 78.1 | 6,998 | 109.6 | 17,428 | 33.9 | 5,824 | 143.5 | 23,252 | 1,065.8 |
| 1975 | 861.5 | 36,659 | 1.2 | 1 | 16.4 | 1,575 | 174.8 | 15,869 | 64.6 | 10,273 | 19.9 | 3,419 | 84.5 | 13,691 | 1,138.4 |
| 1976 | 889.6 | 37,447 | 0.5 | — [4] | 14.7 | 1,415 | 181.4 | 16,425 | 92.2 | 14,668 | 17.1 | 2,933 | 109.3 | 17,600 | 1,195.5 |
| 1977 | 863.1 | 36,451 | 0.3 | — [4] | 12.6 | 1,205 | 191.9 | 17,821 | 135.6 | 21,567 | 20.9 | 3,584 | 156.5 | 25,151 | 1,224.4 |
| 1978 | 865.3 | 36,376 | 0.5 | — [4] | 7.9 | 759 | 244.3 | 22,329 | 164.9 | 26,234 | 21.5 | 3,692 | 186.4 | 29,926 | 1,304.4 |
| 1979 | 991.5 | 41,448 | 1.9 | 2 | 12.6 | 1,221 | 200.0 | 18,796 | 124.5 | 19,797 | 11.4 | 1,958 | 135.9 | 21,755 | 1,341.9 |
| 1980 | 1,019.8 | 42,466 | 3.0 | 3 | 7.6 | 734 | 131.9 | 12,091 | 108.3 | 17,226 | 13.0 | 2,238 | 121.3 | 19,464 | 1,283.6 |
| 1981 | 949.1 | 39,685 | 3.4 | 3 | 6.8 | 659 | 155.7 | 14,276 | 96.4 | 15,334 | 10.1 | 1,735 | 106.5 | 17,069 | 1,221.5 |

[1] *Includes net imports of electricity.*
[2] *Prior to 1980, based on oil used in steam plants. Since 1980, heavy oil includes Grade Nos. 4, 5, and 6 and residual fuel oils.*
[3] *Prior to 1980, based on oil used in internal combustion and gas turbine engine plants. Since 1980, light oil includes Grade No. 2 heating oil, kerosene and jet fuel.*
[4] *Represents small, non-zero value.*

**Note:** Totals may not equal sum of components due to independent rounding.

**Sources:** U.S. Department of Energy, Energy Information Administration, *State Energy Data Report*, June 1983.
Edison Electric Institute, *Statistical Year Book*, (1960-1981).

## PRIMARY CONSUMPTION OF ENERGY BY THE ELECTRIC UTILITY SECTOR, 1960-1981
## PENNSYLVANIA




Primary consumption of energy by electric utilities increased at a compound annual rate of 4.4 percent between 1960 and 1981. Coal consumption increased from 441.3 TBtu in 1960 to a maximum level of 1,019.8 TBtu in 1980 at a compound annual rate of 4.3 percent. Coal consumption then decreased 6.9 percent between 1980 and 1981. Hydro production increased at a compound annual rate of 4.9 percent between 1960 and 1981. Nuclear production increased from 78.1 TBtu in 1974 to 244.3 TBtu in 1978 at an annual rate of 33 percent per year. Nuclear electricity then decreased by 13.9 percent annually to reach 155.7 TBtu in 1981. Petroleum consumption also peaked in 1978 increasing at a compound annual rate of 13.2 percent between 1960 and 1978.

Consumption patterns of electric utilities in 1981 were notably different than that which occurred during 1978. Coal usage increased 9.7 percent or 3.3 million tons. Natural gas usage rose 3.3 million tons. Petroleum consumption was reduced by 42.9 percent or 12.9 million barrels. Hydroelectricity production decreased 13.9 percent and nuclear electricity production decreased 36.3 percent.

The largest energy source consumed by electric utilities for the period 1960 through 1981 was coal — 90.1 percent in 1960, 77.7 percent in 1981. The share of natural gas fell from 1.2 percent to 0.3 percent and hydro power decreased from 4.0 percent to 0.6 percent. Increases occurred in petroleum, from 4.1 percent to 8.7 percent, and in nuclear power, from a negligible share of 12.7 percent.

## U.S. CONSUMPTION OF ANTHRACITE, BY END-USE SECTOR, 1960-1982
### Thousand Short Tons

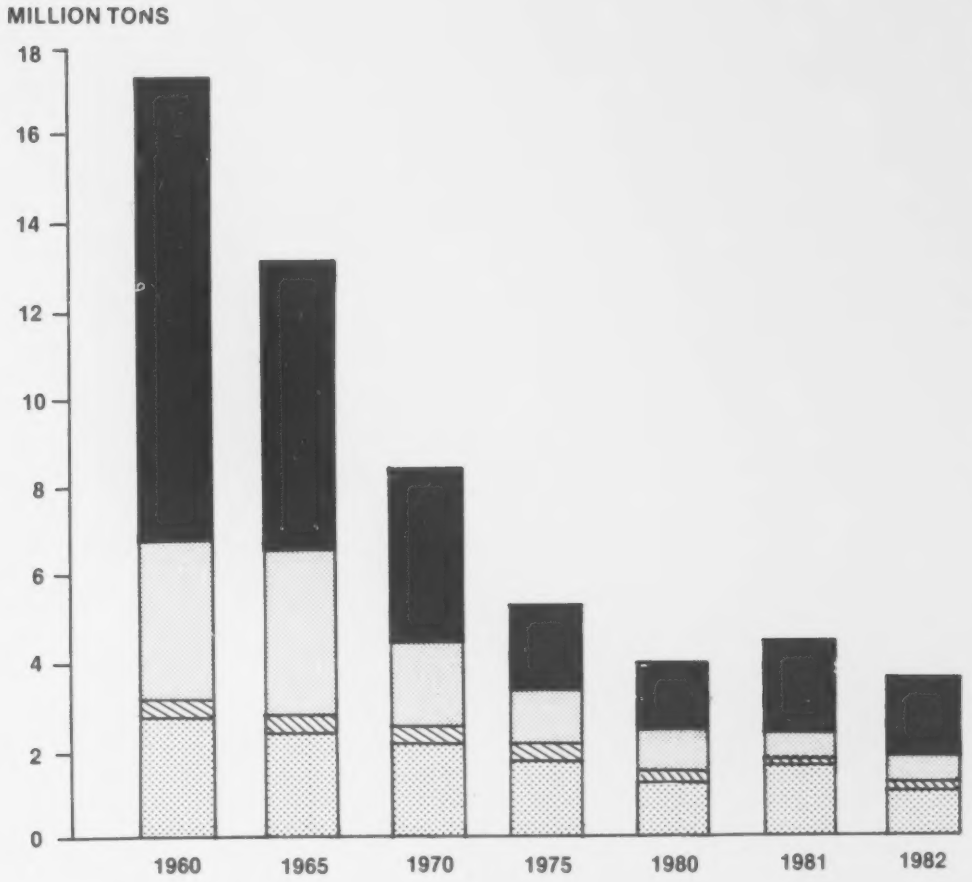
| Year | Electric Utilities | Coke Plants | Other Industrial & Miscellaneous [1] | Residential & Commercial | Total |
|---|---|---|---|---|---|
| 1960 | 2,751 | 370 | 3,611 | 10,543 | 17,275 |
| 1961 | 2,509 | 320 | 3,413 | 9,564 | 15,806 |
| 1962 | 2,297 | 420 | 3,201 | 8,328 | 14,246 |
| 1963 | 2,155 | 451 | 3,445 | 7,890 | 13,941 |
| 1964 | 2,239 | 492 | 4,119 | 7,550 | 14,400 |
| 1965 | 2,158 | 507 | 3,607 | 6,628 | 12,900 |
| 1966 | 2,192 | 515 | 3,071 | 5,622 | 11,400 |
| 1967 | 2,186 | 528 | 3,051 | 5,035 | 10,800 |
| 1968 | 2,203 | 532 | 2,666 | 4,759 | 10,160 |
| 1969 | 1,849 | 583 | 2,208 | 4,209 | 8,809 |
| 1970 | 1,897 | 472 | 1,837 | 4,042 | 8,248 |
| 1971 | 1,646 | 421 | 1,391 | 3,850 | 7,308 |
| 1972 | 1,584 | 474 | 897 | 2,960 | 5,915 |
| 1973 | 1,443 | 467 | 845 | 2,917 | 5,672 |
| 1974 | 1,498 | 444 | 929 | 2,577 | 5,448 |
| 1975 | 1,480 | 326 | 1,172 | 2,128 | 5,106 |
| 1976 | 1,350 | 380 | 1,294 | 2,016 | 5,040 |
| 1977 | 1,425 | 370 | 1,074 | 1,934 | 4,803 |
| 1978 | 1,064 | 316 | 918 | 1,597 | 3,895 |
| 1979 | 1,046 | 359 | 576 | 1,257 | 3,238 |
| 1980 | 951 | 163 | 1,025 | 1,528 | 3,667 |
| 1981 | 1,221 | 126 | 756 | 1,981 | 4,084 |
| 1982 [2] | 1,075 | 48 | 584 | 1,642 | 3,349 |

[1] *Includes the iron and steel industry, cement plants and colliery fuel.*
[2] *Preliminary data.*

**Note:** Totals may not equal sum of components due to independent rounding.

**Sources:** U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook*, "Coal-Pennsylvania Anthracite."
U.S. Department of Energy, Energy Information Administration, *Coal-Pennsylvania Anthracite*, annual; *Coal Data: A Reference*; *Weekly Coal Production*, April 30, 1983.

## U.S. CONSUMPTION OF ANTHRACITE, BY END-USE SECTOR, 1960-1982




Consumption of Pennsylvania anthracite decreased at a compound annual rate of 7.2 percent from 1960 through 1982.

Residential and commercial consumption has steadily declined from 10.5 to 1.6 million tons from 1960 to 1982 at a compound annual rate of 8.2 percent. Other industrial and miscellaneous consumption peaked in 1964 at 4.1 million tons and has decreased by 10.1 percent annually through 1982 to nearly 0.6 million tons. Electric utility consumption decreased by 4.2 percent annually from 2.8 million tons in 1960 to 1.1 million tons in 1982. Anthracite consumption at coke plants declined by 8.9 percent per year during this period.

Domestic distribution of anthracite in 1982 totaled 3.3 million tons or 84 percent of production. Only the electric utility sector increased their consumption of anthracite between 1960 and 1982. Electric utilities constituted 15.9 percent in 1960 and 32.1 percent in 1982. Residential and commercial customers represented 61.0 percent of total anthracite consumption in 1960 and 49.0 percent in 1982. Other industrial users, the iron and steel industry, cement plants and mining operations represented 20.9 percent in 1960 and 17.8 percent in 1982. The share going to coke plants was 2.1 percent in 1960 and 1.4 percent in 1982.

See table on previous page for exact figures.

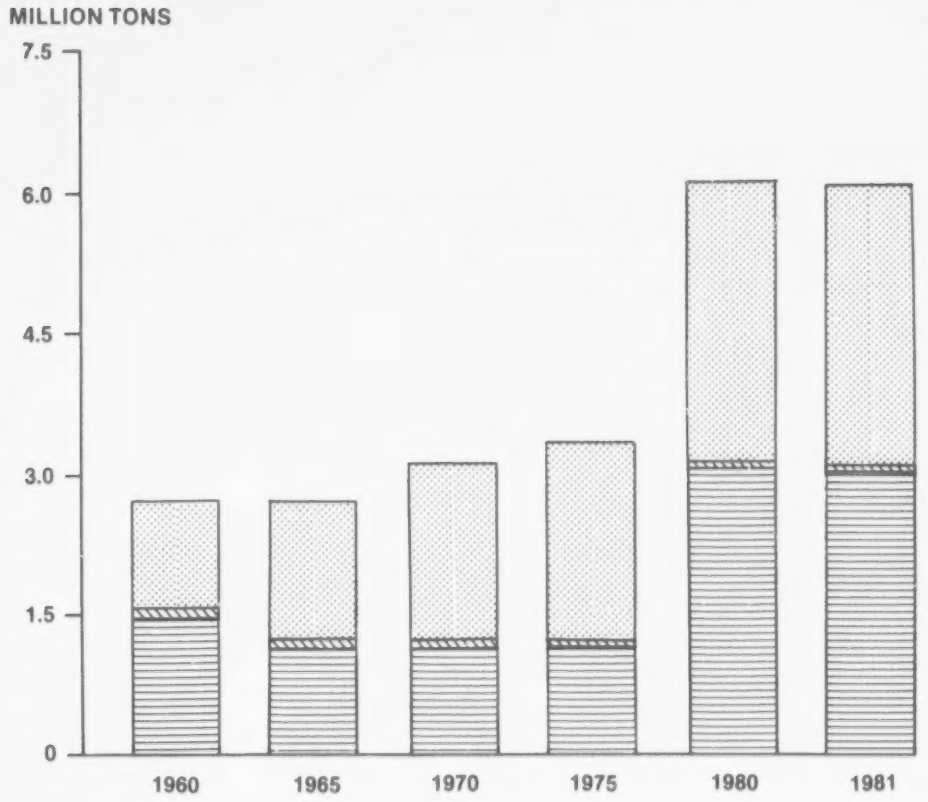
## WOOD ENERGY [1] CONSUMPTION ESTIMATES [2] IN PENNSYLVANIA, 1960-1981
### Thousand Short Tons

| Year | Residential | Commercial | Industrial | Total |
|---|---|---|---|---|
| 1960 | 1,520 | 29 | 1,152 | 2,701 |
| 1961 | 1,450 | 28 | 1,154 | 2,632 |
| 1962 | 1,408 | 27 | 1,224 | 2,659 |
| 1963 | 1,400 | 27 | 1,328 | 2,755 |
| 1964 | 1,286 | 24 | 1,433 | 2,743 |
| 1965 | 1,232 | 23 | 1,499 | 2,754 |
| 1966 | 1,237 | 23 | 1,568 | 2,828 |
| 1967 | 1,210 | 23 | 1,574 | 2,807 |
| 1968 | 1,208 | 23 | 1,710 | 2,941 |
| 1969 | 1,210 | 23 | 1,804 | 3,037 |
| 1970 | 1,191 | 23 | 1,879 | 3,093 |
| 1971 | 1,134 | 22 | 1,892 | 3,048 |
| 1972 | 1,165 | 22 | 1,964 | 3,151 |
| 1973 | 1,034 | 20 | 2,238 | 3,292 |
| 1974 | 1,065 | 20 | 2,260 | 3,345 |
| 1975 | 1,208 | 23 | 2,110 | 3,341 |
| 1976 | 1,441 | 27 | 2,398 | 3,866 |
| 1977 | 1,657 | 31 | 2,483 | 4,171 |
| 1978 | 2,148 | 41 | 2,617 | 4,806 |
| 1979 | 2,580 | 49 | 2,847 | 5,476 |
| 1980 | 3,096 | 59 | 2,914 | 6,069 |
| 1981 | 3,054 | 58 | 2,934 | 6,046 |

[1] *Wood energy refers to either fuelwood or woodfuel or both. See glossary for explanation.*
[2] *Figures are expressed in oven-dried tons; 1 oven-dried ton equals 17.2 million Btu on the average.*

**Source:** U.S. Department of Energy, Energy Information Administration, *Estimates of U.S. Wood Energy Consumption from 1949 to 1981*, August 1982.

## WOOD ENERGY CONSUMPTION ESTIMATES IN PENNSYLVANIA, 1960-1981




The estimate of total wood energy consumption in Pennsylvania increased from 2.7 million tons in 1960 to 6.0 million tons in 1981 at a compound annual rate of 3.9 percent.

Consumption of wood declined throughout the 1960's in part because fossil fuels were abundant, cheap, and more convenient than fuelwood. However, disruption of crude oil supplies and curtailment of natural gas deliveries as well as rising crude oil and natural gas prices in the 1970's revived interest in wood as a residential space-heating fuel. Residential consumption increased at a compound annual rate of 14.5 percent between 1973 and 1981. In 1981, approximately 3.1 million tons of fuelwood were consumed in households around the country. Woodfuel consumption estimates for the commercial sector followed the same trends as the residential sector, decreasing in the sixties and rising in the seventies to reach almost 0.1 million tons in 1981. Estimated industrial consumption increased from 1.2 million tons in 1960 to 2.9 million tons in 1981 at a compound annual rate of 4.3 percent.

The residential share of total wood energy consumption decreased from 56.3 percent in 1960 to 50.5 percent in 1981. The commercial share stayed relatively the same at 1 percent. The industrial sector represented 42.6 percent in 1960 and increased to 48.5 percent in 1981.

See table on previous page for exact figures.

# SECTION THREE

## SELECTED PENNSYLVANIA/ UNITED STATES COMPARISONS

This section graphically illustrates current energy consumption patterns in Pennsylvania and those of the Nation.

The following table and charts present comparisons of 1981 primary consumption by fuel and by sector; petroleum consumption by product and sector; natural gas and coal consumption by sector; electricity sales by sector; and primary consumption by the electric utilities.

In addition, this section comprises a graphic comparison of primary energy consumption per capita by fuel and sector for 1981; and primary energy consumption per gross product by fuel and sector for the same year.

For comparative purposes, the national energy data were compiled in the same manner as the Pennsylvania data. Therefore, all state and national data in the report exclude the following:

- non-energy petroleum products (which are listed separately in the appendix);
- sales of electricity (unless otherwise noted).

## PRIMARY CONSUMPTION OF ENERGY, 1981
## PENNSYLVANIA AND UNITED STATES
### Trillion Btu

| Fuel/Sector | Residential | Commercial | Industrial | Transportation | Electric Utilities | Total |
|---|---|---|---|---|---|---|
| **PENNSYLVANIA** | | | | | | |
| Coal | 25.0 | 21.0 | 475.2 | 0.0 | 949.1 | 1,470.3 |
| Natural Gas | 292.9 | 131.8 | 341.6 | 34.6 | 3.4 | 804.3 |
| Hydro | – | – | – | – | 6.8 | 6.8 |
| Nuclear | – | – | – | – | 155.7 | 155.7 |
| Distillate | 141.0 | 30.1 | 58.7 | 109.0 | 10.2 | 349.0 |
| Residual | – | 10.0 | 48.9 | 32.6 | 96.4 | 187.9 |
| Gasoline | – | 3.5 | 6.4 | 537.2 | – | 547.1 |
| Kerosene | 11.3 | 1.0 | 2.7 | – | – | 15.0 |
| Aviation Fuels | – | – | – | 52.4 | – | 52.4 |
| L.P.G. | 6.7 | – | 24.2 | 0.2 | – | 31.1 |
| Total Primary Consumption | 476.8 | 198.6 | 957.7 | 766.0 | 1,221.5 | 3,620.6 |
| **UNITED STATES** | | | | | | |
| Coal | 77.4 | 108.2 | 3,205.2 | 0.0 | 12,619.1 | 16,009.9 |
| Natural Gas | 4,660.1 | 2,582.8 | 8,256.5 | 658.4 | 3,763.9 | 19,921.7 |
| Hydro | – | – | 32.8 | – | 3,033.0 | 3,065.8 |
| Nuclear | – | – | – | – | 2,974.3 | 2,974.3 |
| Distillate | 1,147.1 | 457.1 | 1,388.6 | 2,901.3 | 124.0 | 6,018.1 |
| Residual | – | 417.3 | 1,081.2 | 1,219.0 | 2,073.4 | 4,790.9 |
| Gasoline | – | 91.6 | 159.8 | 12,379.1 | – | 12,630.5 |
| Kerosene | 85.3 | 69.3 | 107.9 | – | – | 262.5 |
| Aviation Fuels | – | – | 0.0 | 2,114.5 | – | 2,114.5 |
| L.P.G. | 312.0 | 55.1 | 1,547.2 | 7.6 | – | 1,921.9 |
| Total Primary Consumption | 6,281.9 | 3,781.4 | 15,779.2 | 19,279.9 | 24,587.7 | 69,710.1 |

[1] *Represents small, non-zero value.*

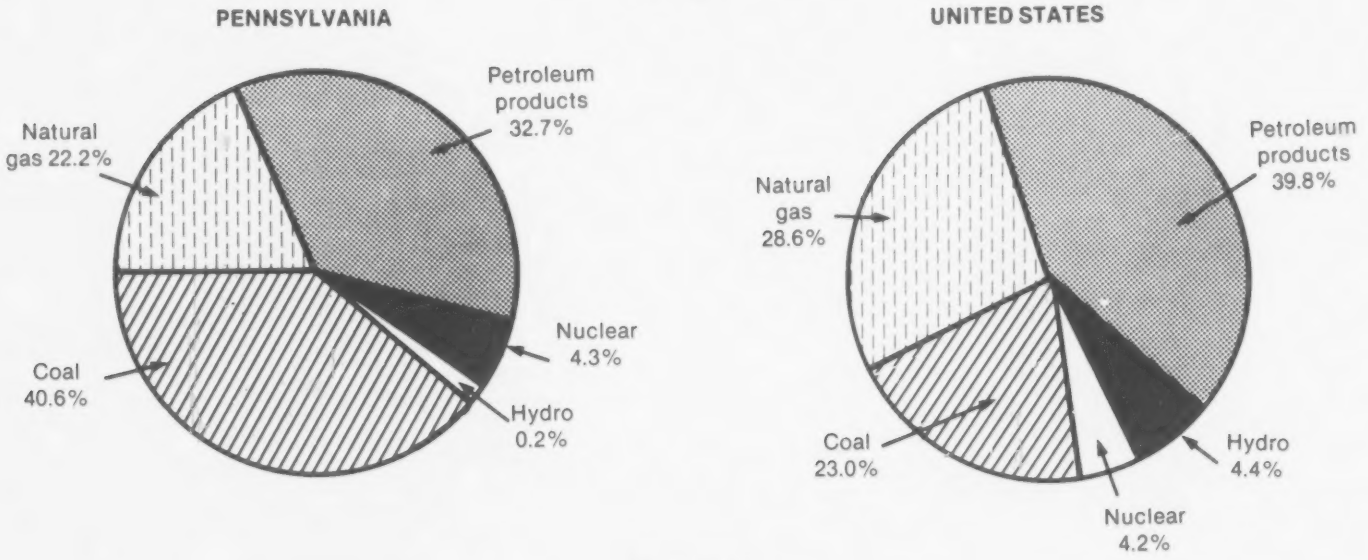
Coal: Includes anthracite, bituminous and lignite.
Hydro: Includes industrial and utility production, and net imports of electricity.
Aviation Fuels: Includes jet fuel and aviation gasoline.
L.P.G.: Includes ethane, ethylene, propane, propylene, butane, butylene, butane-propane mixture, ethane-propane mixture, and isobutane.

**Note:** Totals may not equal sum of components due to independent rounding.

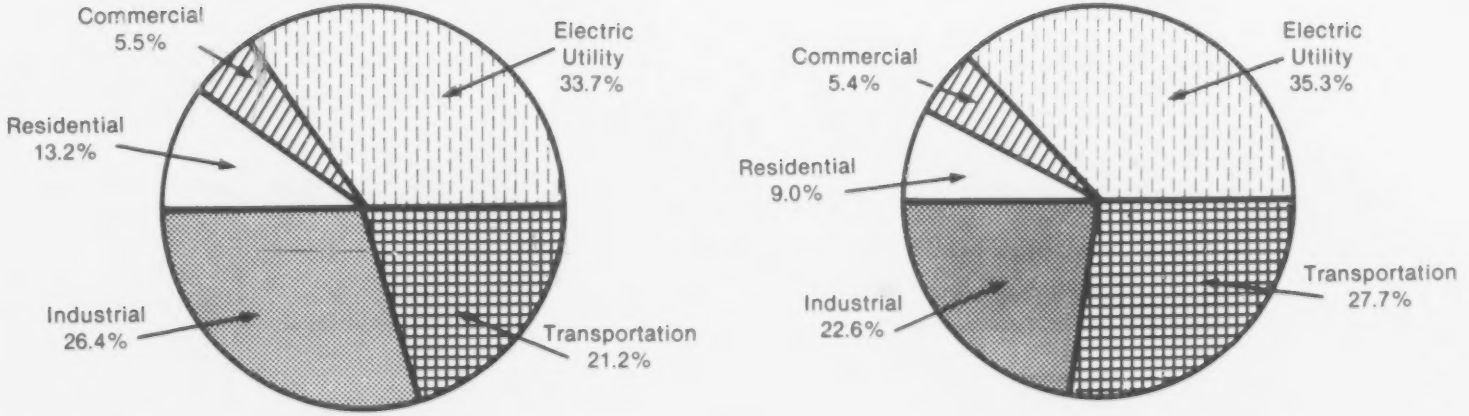
**Source:** U.S. Department of Energy, Energy Information Administration, *State Energy Data Report*, June 1983.

## PRIMARY CONSUMPTION OF ENERGY, 1981
## PENNSYLVANIA AND UNITED STATES

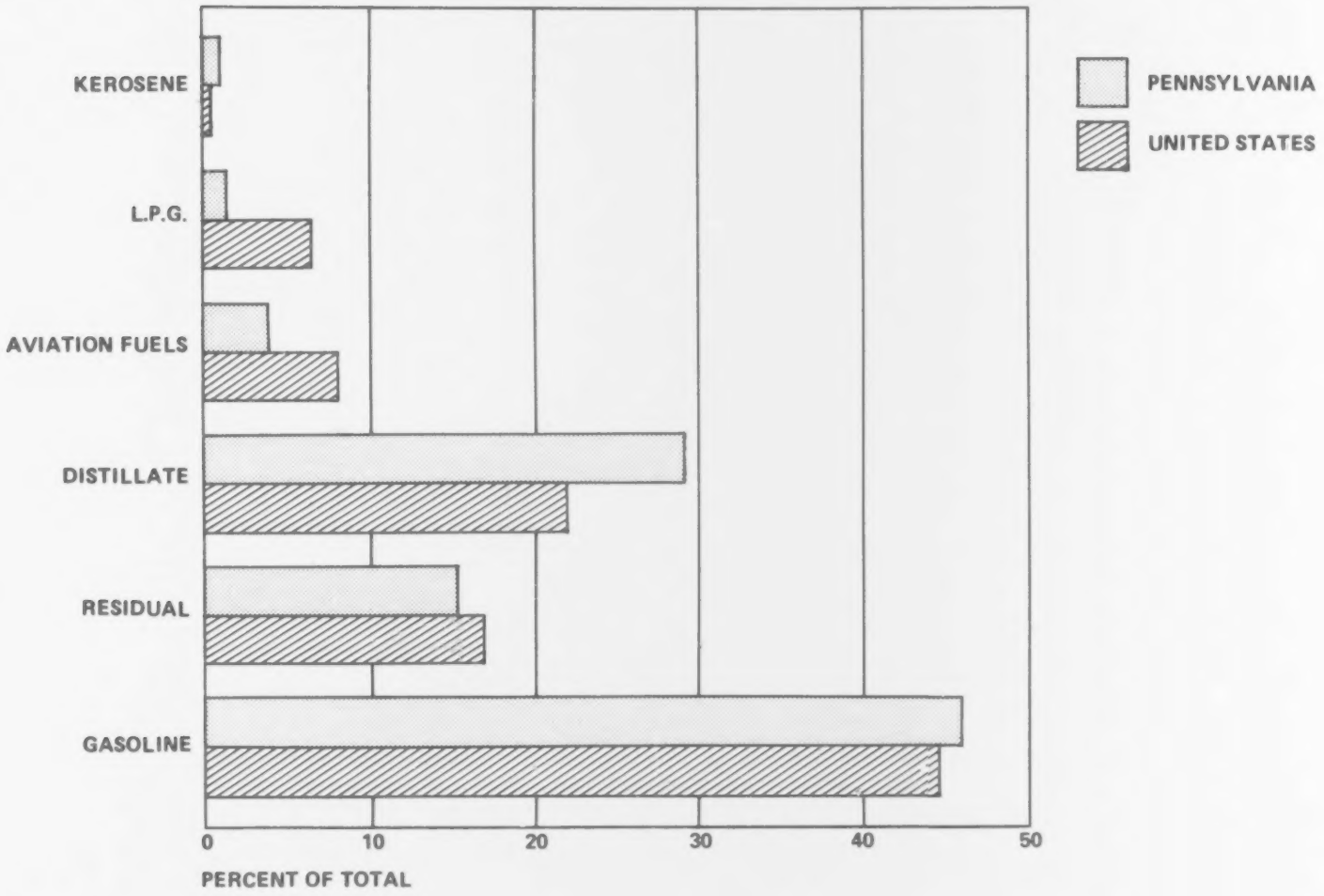
### BY FUEL



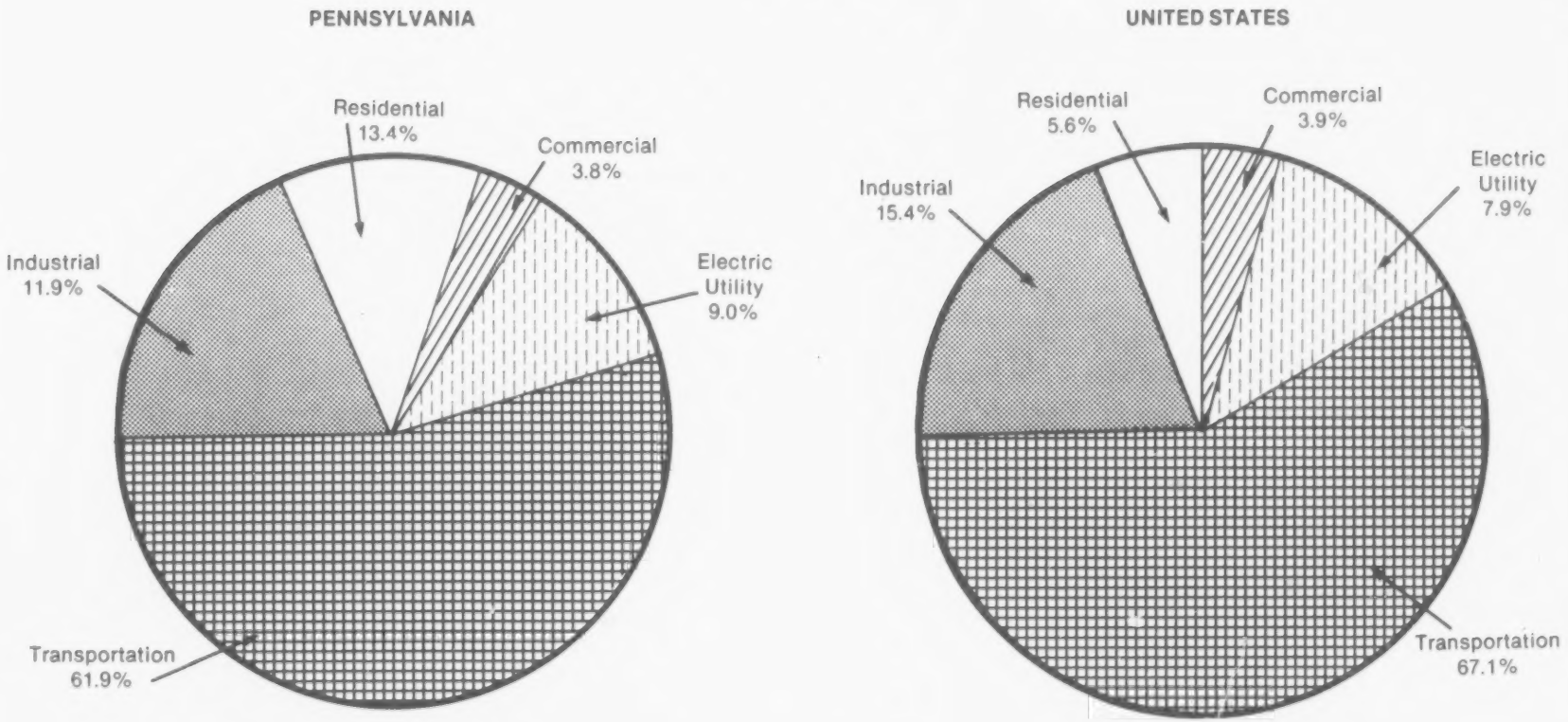

### BY SECTOR



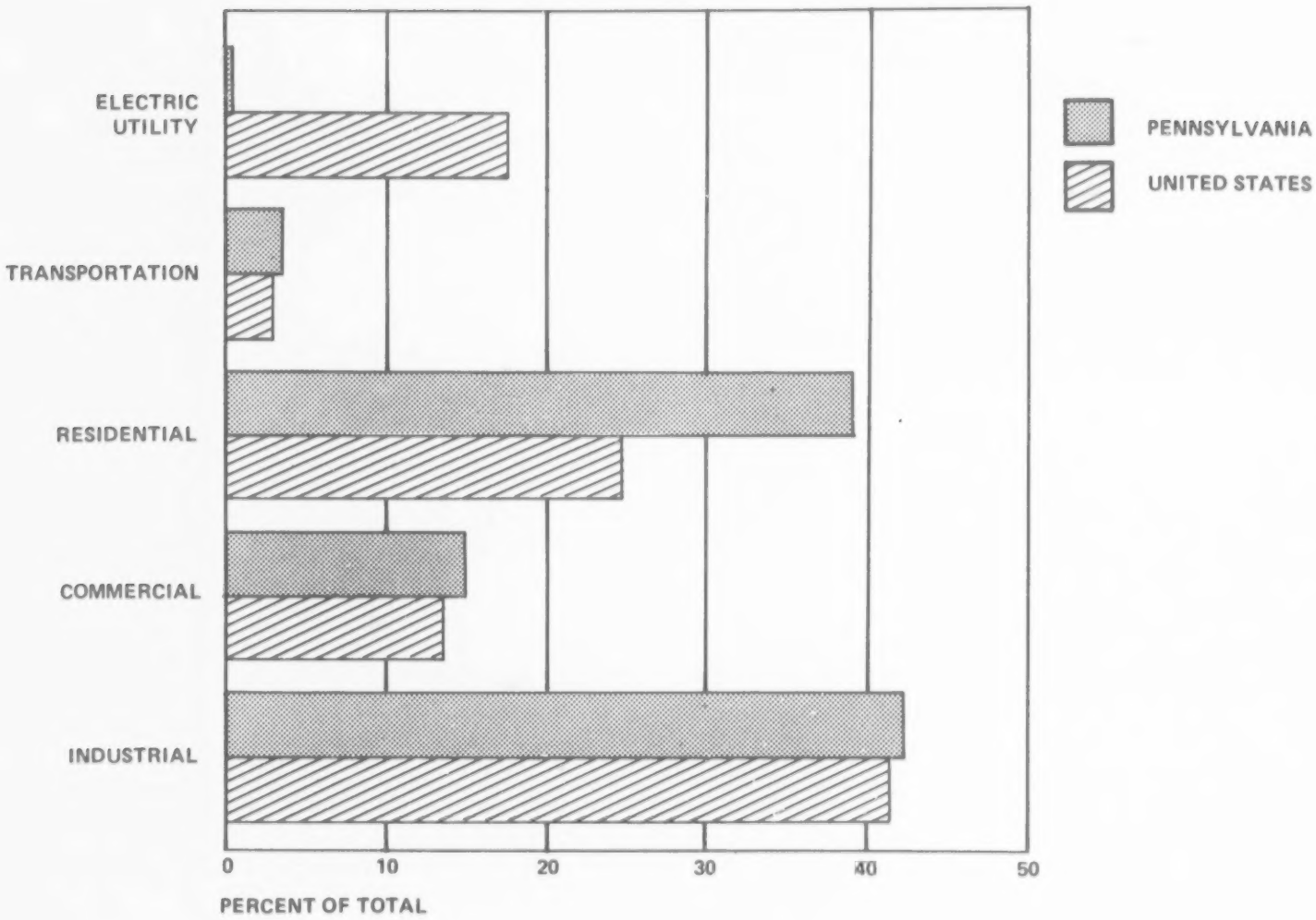
## PETROLEUM CONSUMPTION PRODUCT, 1981
## PENNSYLVANIA AND UNITED STATES



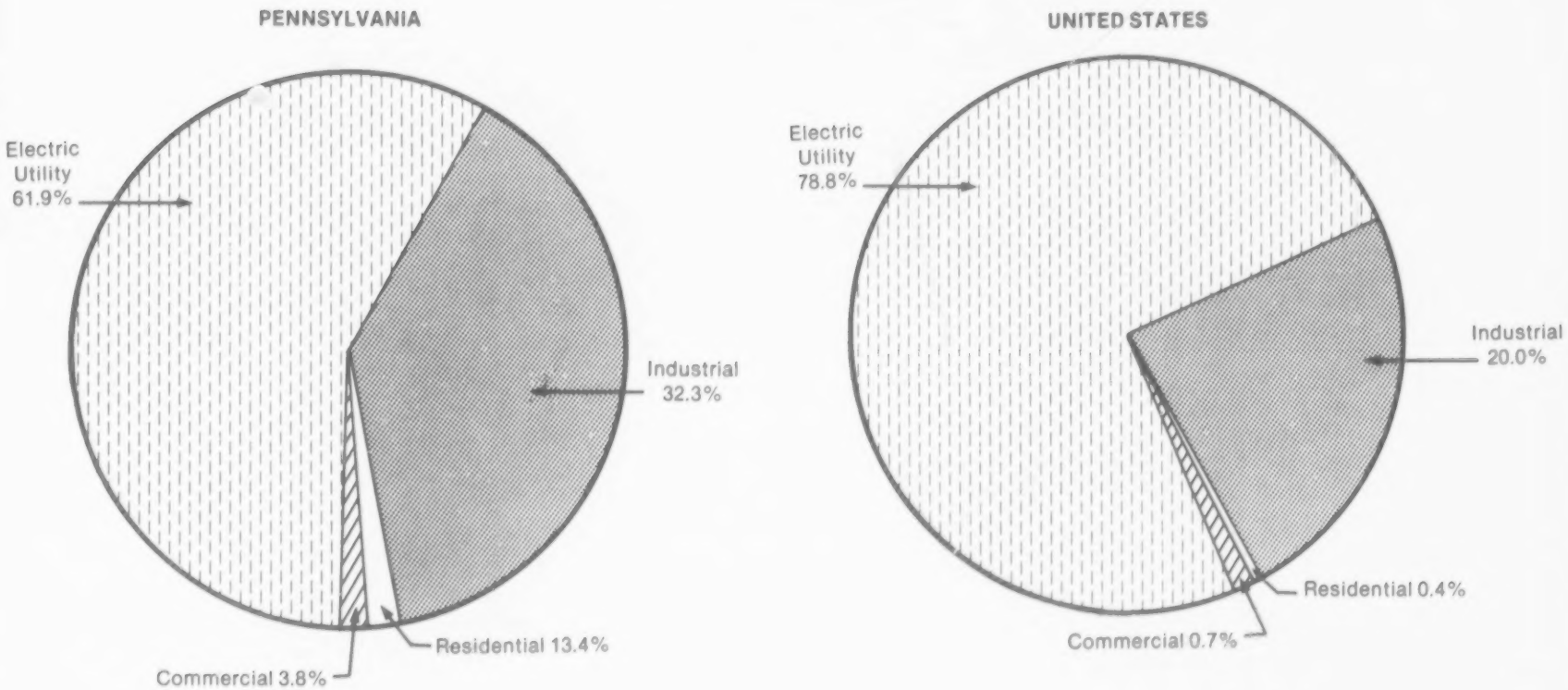
## PETROLEUM COMSUMPTION BY SECTOR, 1981
## PENNSYLVANIA AND UNITED STATES



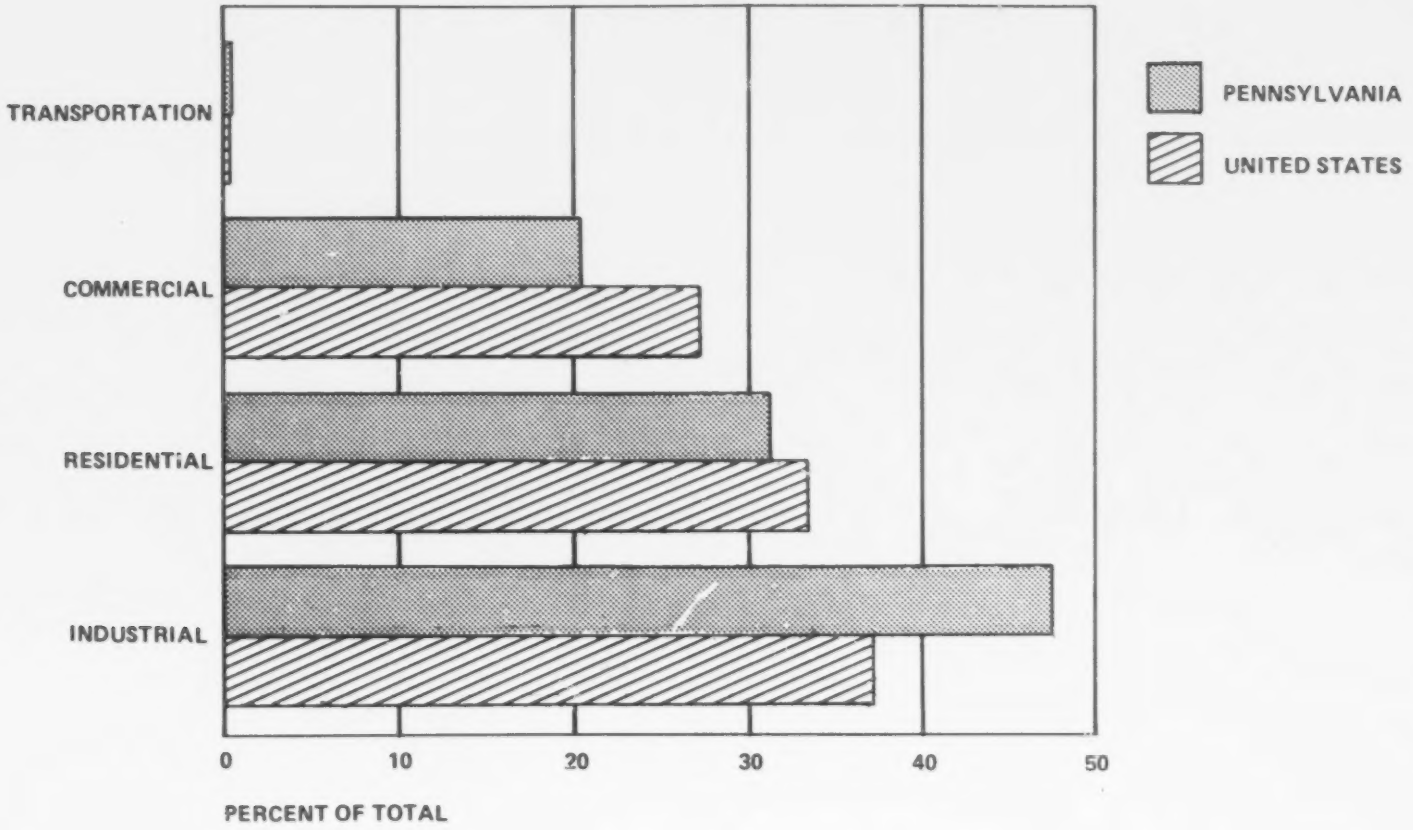
## NATURAL GAS CONSUMPTION BY SECTOR, 1981
## PENNSYLVANIA AND UNITED STATES



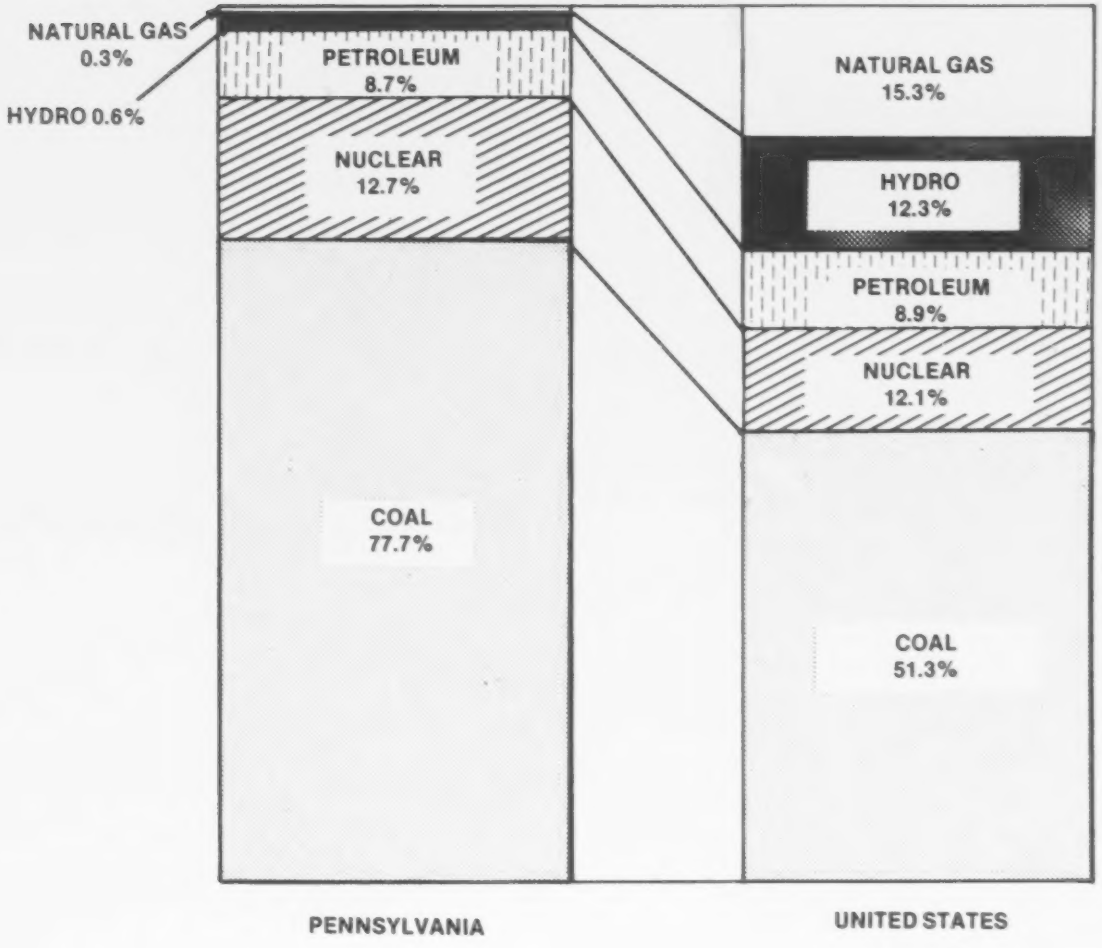
## COAL CONSUMPTION BY SECTOR, 1981
## PENNSYLVANIA AND UNITED STATES



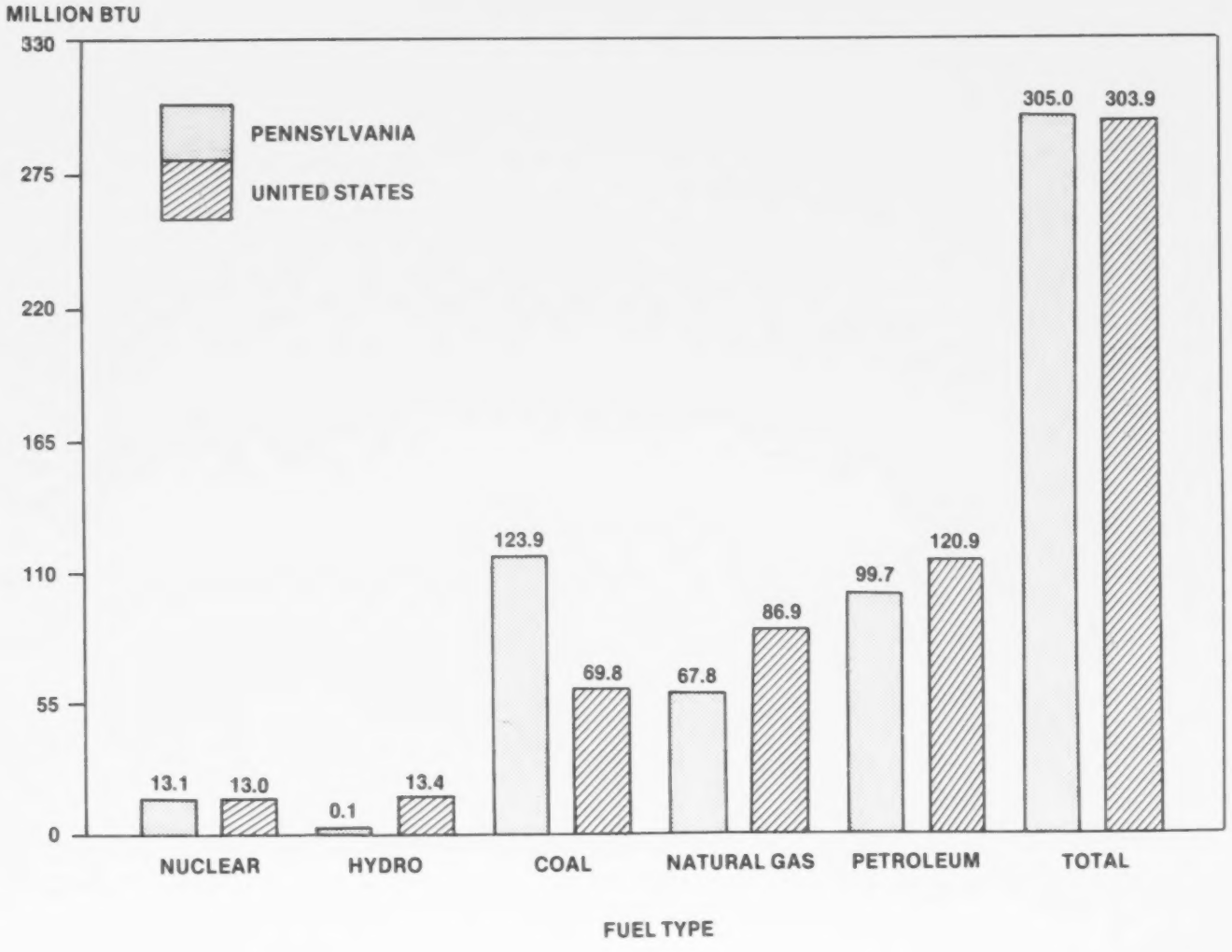
## ELECTRICITY SALES BY SECTOR, 1981
## PENNSYLVANIA AND UNITED STATES



## PRIMARY CONSUMPTION BY THE ELECTRIC UTILITIES, 1981
## PENNSYLVANIA AND UNITED STATES

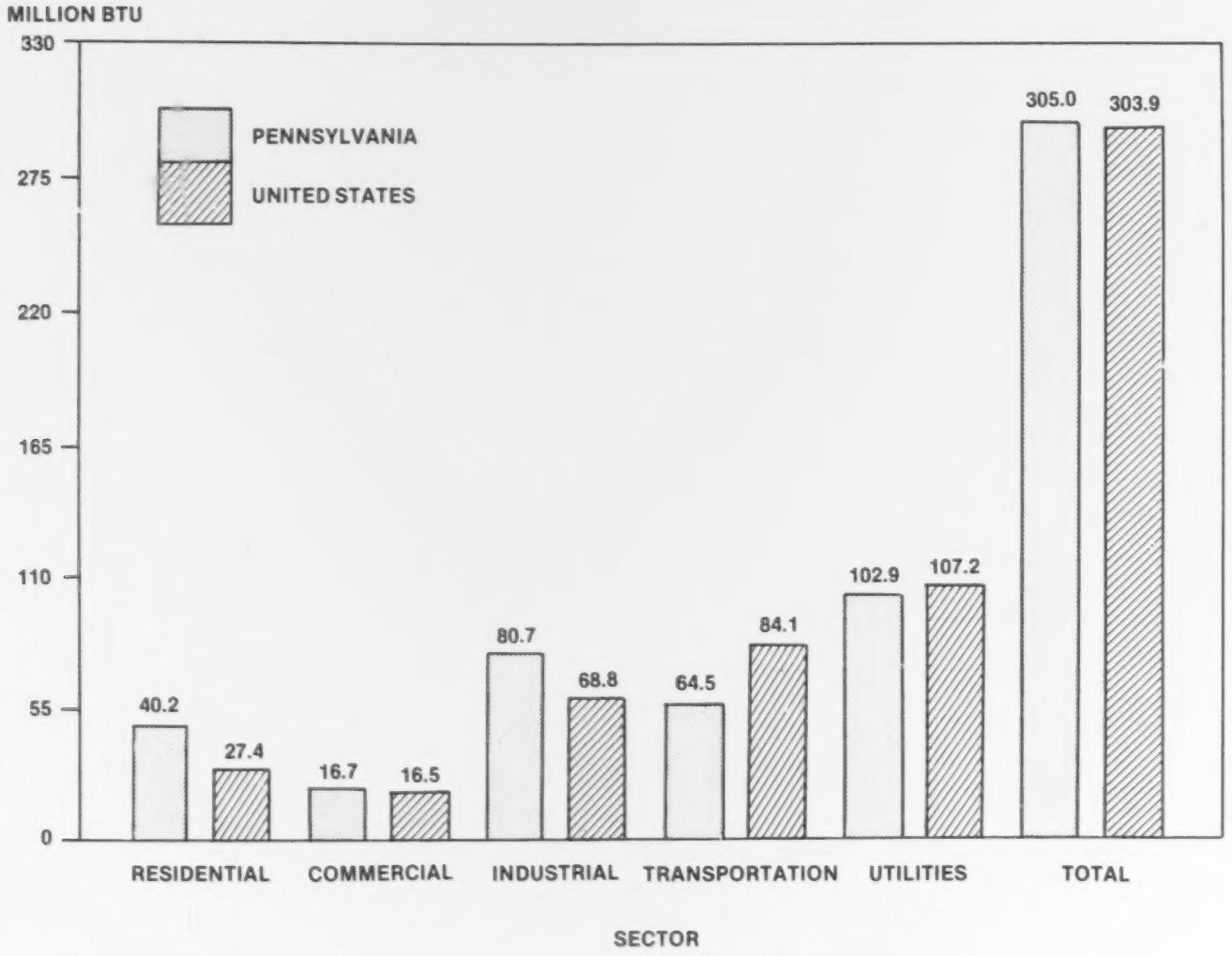


## PRIMARY ENERGY CONSUMPTION PER CAPITA, BY FUEL — 1981
## PENNSYLVANIA AND UNITED STATES



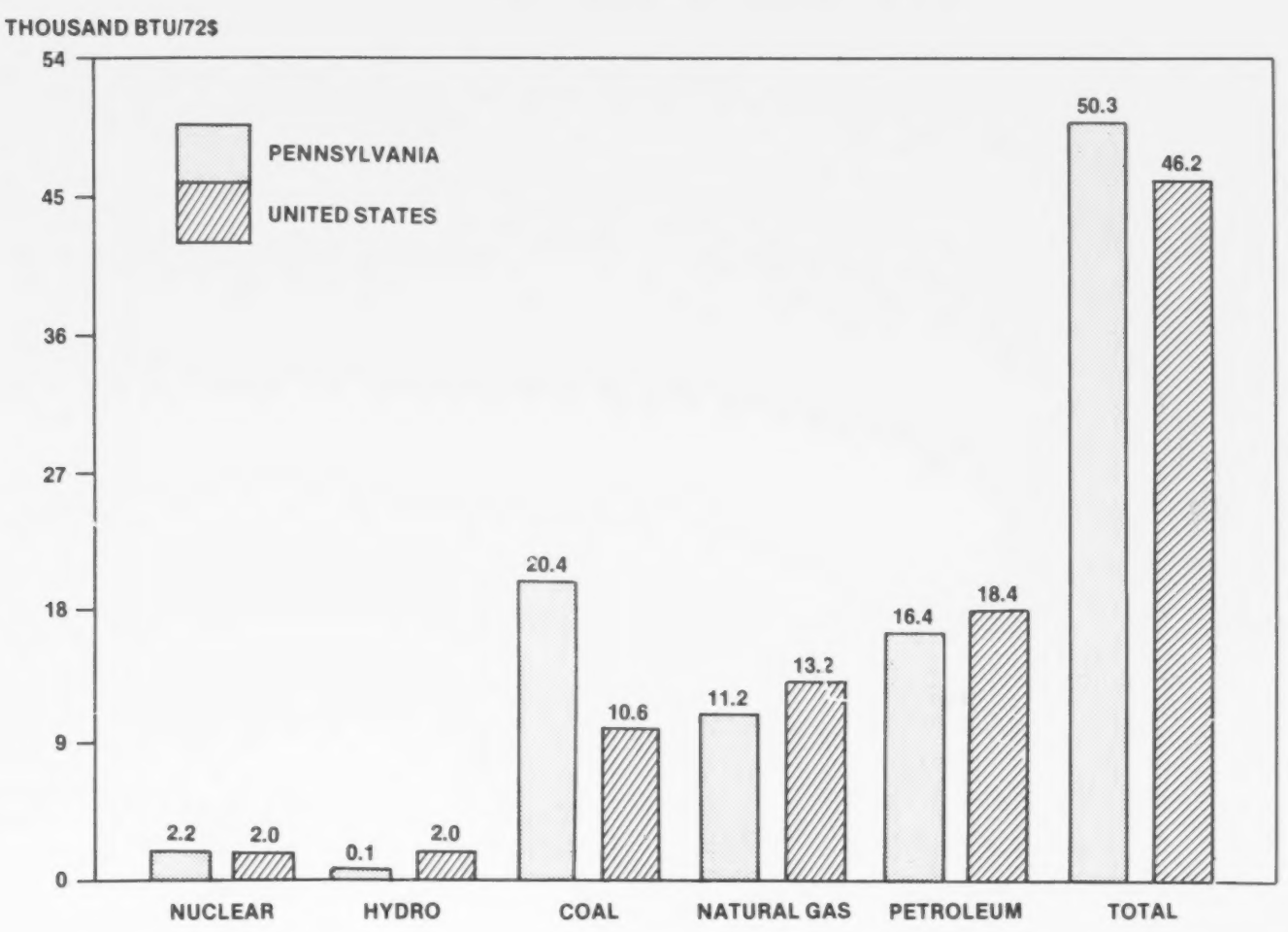

**Note:** In 1981, the largest per capita use of primary energy for Pennsylvania was of coal. Petroleum consumption per capita ranked the highest for the nation as a whole.

## PRIMARY ENERGY CONSUMPTION PER CAPITA, BY SECTOR — 1981
## PENNSYLVANIA AND UNITED STATES



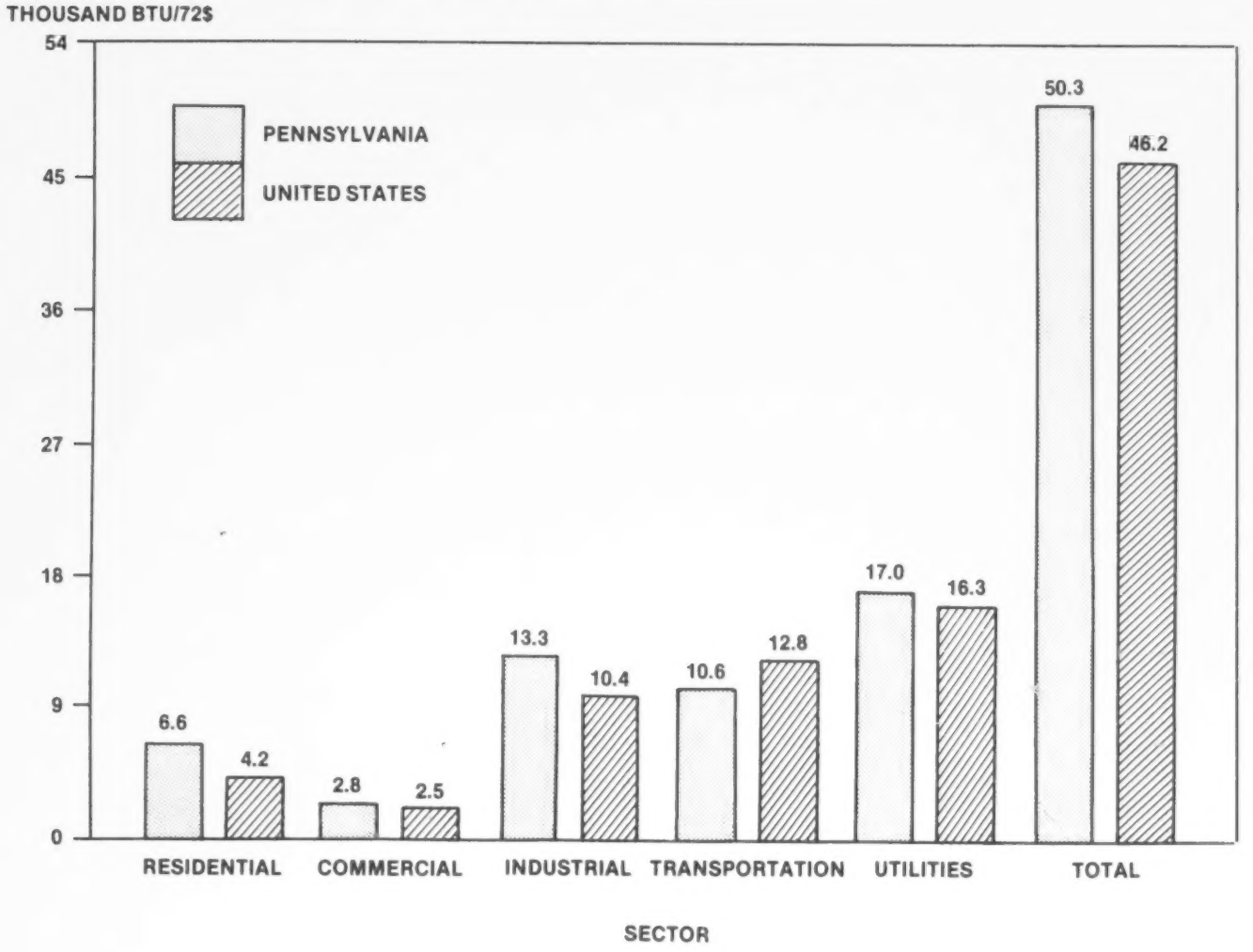

**Note:** The national primary energy consumption per capita by sector exceeded Pennsylvania's in the transportation and utility sectors, however the state consumed more than the nation in the residential and industrial sectors in 1981.

## PRIMARY ENERGY CONSUMPTION PER GROSS PRODUCT, BY FUEL — 1981
## PENNSYLVANIA AND UNITED STATES




**Note:** Compared to the national average, Pennsylvania consumed nearly twice as much coal and slightly less petroleum and natural gas per gross product in 1981.

## PRIMARY ENERGY CONSUMPTION PER GROSS PRODUCT, BY SECTOR — 1981
## PENNSYLVANIA AND UNITED STATES




**Note:** Except for Pennsylvania's transportation sector, all other sectors consumed more primary energy per gross product than the national average in 1981.

# SECTION FOUR

## PENNSYLVANIA ENERGY PRICES BY FUEL AND SECTOR

This section presents Pennsylvania's energy expenditures for the years 1970 through 1980 and average fuel price data by sector from 1970 through 1982. The expenditure and price series for 1970 to 1980 has been provided by the U.S. Department of Energy, Energy Information Administration in their report, Energy Price and Expenditure Data Report, 1970-1980 (State and U.S. Total). This is the first time such a comprehensive energy price and expenditure data system has been developed. The price series in this publication are a revision to the 1970-1980 data previously published, based on new and improved methodologies. Fuel price data for 1981 is taken from the State Energy Price System: 1981 Update. The majority of data for 1982 are preliminary estimates based on calculating the relationship between state level prices (where available) and national price information. These figures should not be considered final. Energy prices for all years are presented in nominal dollars and have not been adjusted for inflation.

The series of tables in this section are organized by major fuel and economic sector. The information provided in these tables include the following:

- fuel expenditures and electricity sales by fuel type for 1970 through 1980,
- fuel expenditures by end-use sector and electric utilities for 1970 through 1980,
- average fuel price data for the residential, commercial, industrial and transportation sectors in cost per physical unit and dollars per million Btu for 1970 through 1982,
- domestic coal prices of bituminous at the mine-mouth and anthracite at preparation plants from 1970 through 1982 in cost per physical unit and dollars per million Btu (in current and constant dollars).

## FUEL EXPENDITURES AND ELECTRICITY SALES BY FUEL TYPE, 1970-1980
## PENNSYLVANIA
### (Million Dollars)

| Energy Expenditures All Sectors | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Coal** | | | | | | | | | | | |
| Metallurgical Coal | 336 | 295 | 368 | 453 | 870 | 976 | 1,062 | 874 | 1,003 | 1,073 | 958 |
| Other Coal | 97 | 137 | 108 | 120 | 229 | 268 | 224 | 226 | 250 | 237 | 230 |
| (Including Electricity Generation) | 314 | 413 | 444 | 520 | 972 | 1,126 | 1,035 | 1,023 | 1,195 | 1,350 | 1,470 |
| Total Coal | 433 | 432 | 476 | 573 | 1,098 | 1,244 | 1,286 | 1,100 | 1,253 | 1,310 | 1,189 |
| (Including Electricity Generation) | 650 | 709 | 813 | 973 | 1,841 | 2,102 | 2,097 | 1,897 | 2,198 | 2,424 | 2,429 |
| **Natural Gas** | | | | | | | | | | | |
| Total Natural Gas | 668 | 734 | 816 | 827 | 884 | 989 | 1,214 | 1,459 | 1,540 | 2,063 | 2,612 |
| (Including Electricity Generation) | 672 | 739 | 818 | 828 | 896 | 991 | 1,214 | 1,460 | 1,542 | 2,068 | 2,623 |
| **Petroleum Products** | | | | | | | | | | | |
| Asphalt and Road Oil | 34 | 39 | 41 | 41 | 73 | 74 | 82 | 91 | 94 | 114 | 127 |
| Aviation Gasoline | 5 | 5 | 5 | 6 | 7 | 7 | 8 | 9 | 10 | 13 | 18 |
| Distillate Fuel Oil | 413 | 432 | 475 | 584 | 944 | 979 | 1,165 | 1,363 | 1,388 | 2,004 | 2,614 |
| (Including Electricity Generation) | 426 | 454 | 510 | 610 | 1,040 | 1,020 | 1,217 | 1,447 | 1,443 | 2,077 | 2,692 |
| Jet Fuel | 39 | 39 | 38 | 48 | 81 | 102 | 110 | 128 | 151 | 227 | 378 |
| (Including Electricity Generation) | 39 | 39 | 40 | 50 | 83 | 103 | 110 | 128 | 152 | 227 | 378 |
| Kerosene | 34 | 38 | 44 | 37 | 56 | 55 | 60 | 50 | 51 | 84 | 123 |
| Liquefied Petroleum Gases | 36 | 36 | 45 | 52 | 83 | 85 | 104 | 118 | 125 | 169 | 204 |
| Lubricants | 141 | 131 | 141 | 175 | 238 | 190 | 211 | 242 | 265 | 348 | 362 |
| Motor Gasoline | 1,560 | 1,677 | 1,791 | 1,829 | 2,514 | 2,695 | 2,978 | 3,235 | 3,276 | 4,272 | 5,507 |
| Residual Fuel | 119 | 155 | 173 | 227 | 507 | 407 | 449 | 539 | 486 | 508 | 517 |
| (Including Electricity Generation) | 185 | 253 | 264 | 322 | 722 | 560 | 623 | 851 | 843 | 884 | 996 |
| All Other Petroleum Products | 62 | 63 | 63 | 80 | 168 | 198 | 225 | 262 | 296 | 384 | 552 |
| (Including Electricity Generation) | 62 | 63 | 63 | 80 | 168 | 198 | 225 | 262 | 301 | 386 | 553 |
| Total Petroleum | 2,441 | 2,614 | 2,818 | 3,078 | 4,672 | 4,793 | 5,393 | 6,036 | 6,141 | 8,121 | 10,401 |
| (Including Electricity Generation) | 2,520 | 2,735 | 2,946 | 3,201 | 4,986 | 4,988 | 5,619 | 6,432 | 6,560 | 8,572 | 10,959 |
| Nuclear Power, Electricity Generation | 1 | 1 | 1 | 1 | 19 | 44 | 42 | 47 | 63 | 62 | 55 |
| Electricity Sales | 1,349 | 1,612 | 1,811 | 2,055 | 2,695 | 3,112 | 3,325 | 3,788 | 4,078 | 4,502 | 5,268 |
| Total (Including Electricity Sales, Excluding Electricity Generation) | 4,891 | 5,393 | 5,920 | 6,533 | 9,349 | 10,138 | 11,217 | 12,383 | 13,012 | 15,996 | 19,470 |
| Total (Excluding Electricity Sales, Including Electricity Generation) | 3,843 | 4,184 | 4,578 | 5,003 | 7,742 | 8,125 | 8,972 | 9,836 | 10,363 | 13,126 | 16,066 |

**Note:** Within this table, two total expenditures exist. The first represents end-use energy expenditures. This total includes fuel costs incurred by the residential, commercial, industrial and transportation sectors, including the cost of electricity. The second total represents primary fuels purchased. This total excludes electricity sales to the end-use sectors, but includes the cost of fuels purchased by electric utilities.

**Note:** Liquefied petroleum gases include ethane, ethylene, propane, propylene, butylene, butane-propane mixture, ethane-propane mixture, and isobutane.

**Note:** There are no purchased fuel expenditures for energy sources such as hydropower, solar, wind, and geothermal.

**Note:** Data for 1980 distillate, kerosene, LPG, and residual fuel prices are preliminary estimates.

**Note:** The "All Other Petroleum Products" category includes natural gasoline, unfractionated stream, plant condensate, petrochemical feedstocks, special napthas, petroleum coke (not consumed in electric utilities), still gas, wax, and miscellaneous products. The "(Including Electricity Generation)" category includes petroleum coke fuel expenditures for electric utilities.

**Note:** Excludes net imports of coal coke.

**Source:** U.S. Department of Energy, Energy Information Administration, *Energy Price and Expenditures Data Report, 1970-1980 (State and U.S. Total)*, July 1983.

## FUEL EXPENDITURES BY END-USE SECTOR, ELECTRIC UTILITIES, AND FUEL TYPE, 1970-1980
## PENNSYLVANIA
### (Million Dollars)

| | Residential | | | Commercial | | | Industrial | | | Transportation | | | Electric Utilities | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1970 | 1975 | 1980 | 1970 | 1975 | 1980 | 1970 | 1975 | 1980 | 1970 | 1975 | 1980 | 1970 | 1975 | 1980 |
| Natural Gas | 366.71 | 524.69 | 1,100.38 | 95.67 | 168.32 | 423.61 | 198.57 | 286.70 | 1,032.48 | 6.71 | 9.46 | 55.84 | 4.00 | 1.83 | 10.66 |
| Metallurgical Coal | – | – | – | – | – | – | 335.59 | 975.54 | 958.44 | – | – | – | – | – | – |
| Other Coal | 15.31 | 68.90 | 51.56 | 11.02 | 24.30 | 22.06 | 70.47 | 174.72 | 156.65 | .45 | .14 | .00 | 216.90 | 858.02 | 1,239.86 |
| Total Petroleum | 284.47 | 574.52 | 1,299.79 | 93.06 | 168.18 | 302.69 | 353.59 | 933.40 | 1,831.38 | 1,710.06 | 3,116.43 | 6,967.27 | 79.10 | 195.90 | 557.62 |
| Distillate Fuel | 237.23 | 504.07 | 1,118.79 | 35.12 | 79.44 | 220.50 | 41.69 | 149.19 | 402.15 | 98.49 | 245.87 | 872.82 | 13.19 | 41.78 | 77.62 |
| Kerosene | 29.91 | 35.80 | 108.02 | 1.23 | 2.53 | 7.24 | 2.46 | 17.13 | 7.80 | – | – | – | – | – | – |
| LPG | 17.33 | 34.66 | 72.99 | 1.84 | 4.12 | 8.33 | 16.66 | 45.66 | 121.32 | .33 | .68 | 1.42 | – | – | – |
| Residual Fuel | – | – | – | 17.22 | 49.63 | 50.65 | 86.98 | 293.35 | 346.62 | 14.73 | 64.02 | 119.65 | 65.91 | 152.98 | 478.64 |
| Motor Gasoline | – | – | – | 37.64 | 32.47 | 15.97 | 18.11 | 27.20 | 29.90 | 1,503.87 | 2,635.61 | 5,461.51 | – | – | – |
| Aviation Gasoline | – | – | – | – | – | – | – | – | – | 5.11 | 7.14 | 17.51 | – | – | – |
| Jet Fuel | – | – | – | – | – | – | .00 | .53 | .00 | 39.01 | 101.06 | 377.75 | .00 | 1.14 | .00 |
| Asphalt | – | – | – | – | – | – | 33.68 | 74.13 | 126.23 | – | – | – | – | – | – |
| Lubricants | – | – | – | – | – | – | 92.09 | 127.85 | 244.92 | 48.51 | 62.04 | 116.61 | – | – | – |
| Road Oil | – | – | – | – | – | – | .31 | .03 | .88 | – | – | – | – | – | – |
| Other Petroleum Products | – | – | – | – | – | – | 61.62 | 198.36 | 551.56 | – | – | – | – | – | – |
| Petroleum Coke | – | – | – | – | – | – | – | – | – | – | – | – | .00 | .00 | 1.37 |
| Electricity | 560.86 | 1,207.20 | 1,933.61 | 308.92 | 756.45 | 1,263.97 | 473.40 | 1,130.18 | 2,039.21 | 6.23 | 18.41 | 30.85 | 65.91 | 152.98 | 478.64 |
| Nuciear Power | – | – | – | – | – | – | – | – | – | – | – | – | 1.08 | 44.27 | 55.26 |
| Total Energy | 1,227.35 | 2,375.32 | 4,385.34 | 508.67 | 1,117.25 | 2,012.32 | 1,431.62 | 3,500.59 | 6,018.15 | 1,723.44 | 3,144.43 | 7,053.97 | 301.07 | 1,100.01 | 1,863.40 |

**Note:** Excludes net imports of coal coke to the industrial sector by state.
**Note:** The end use sector and electric utilities categories exclude expenditures on energy sources such as hydropower, solar, wind, and geothermal since there are no associated fuel costs for these energy sources.
**Note:** Liquefied petroleum gases include ethane, ethylene, propane, propylene, butylene, butane-propane mixture, ethane-propane mixture, and isobutane.
**Note:** Coal includes anthracite, bituminous, and lignite except in the transportation sector which does not consume anthracite.
**Note:** Residential, commercial, industrial, and transportation expenditures exclude energy expenditures for wood and wood waste.
**Note:** Expenditures on net imports of coal coke are not distributed by state.

**Source:** U.S. Department of Energy, Energy Information Administration, *Energy Price and Expenditure Data, 1970-1980 (State and U.S. Total)*, July 1983.

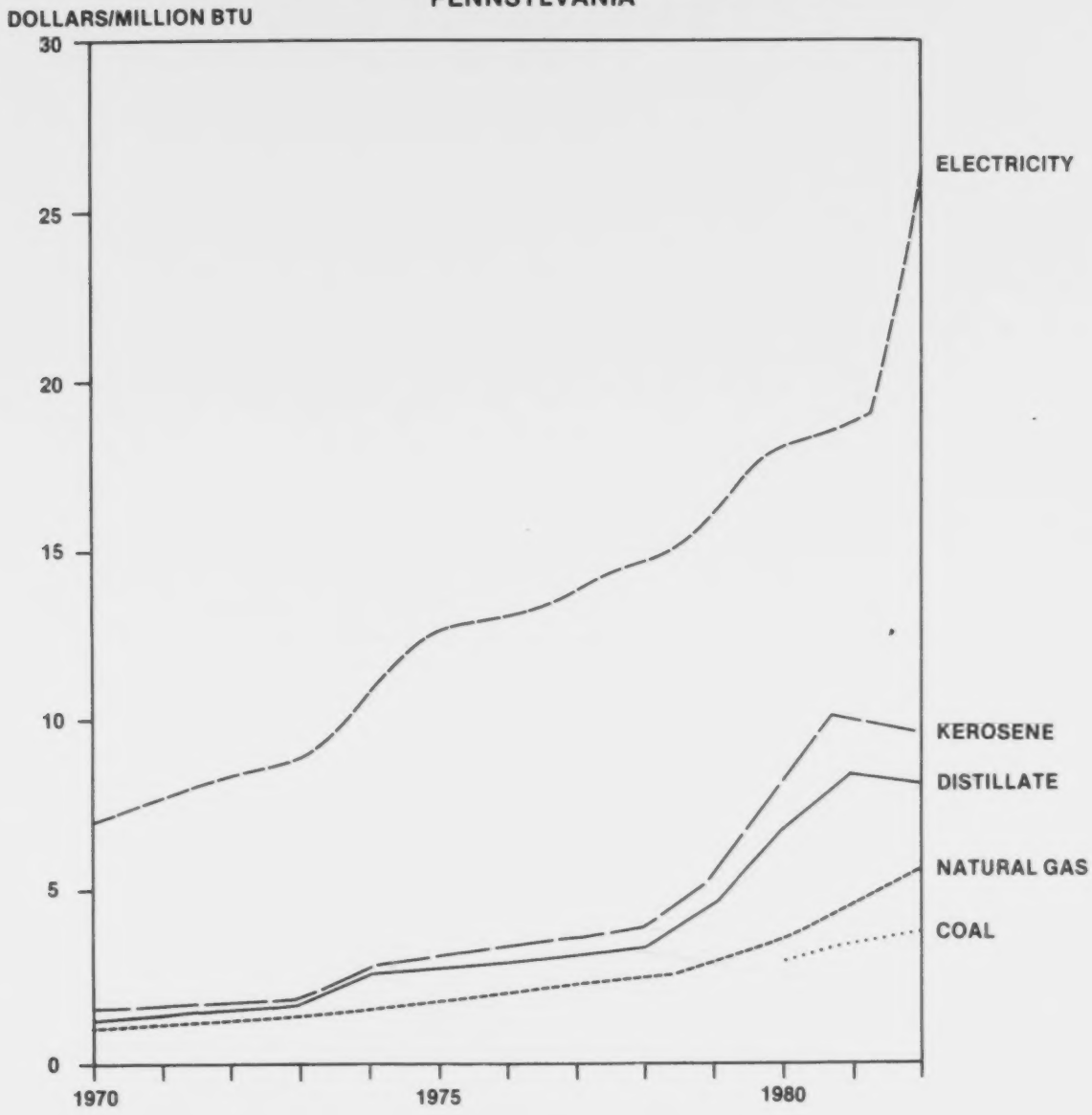
## RESIDENTIAL SECTOR RETAIL ENERGY PRICES, 1970-1982
## PENNSYLVANIA

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **COAL (Anthracite)** | | | | | | | | | | | | | |
| ($/Ton) | – | – | – | – | – | – | – | – | – | – | 78.00 | 96.00 | 105.00 |
| ($/Million Btu) | – | – | – | – | – | – | – | – | – | – | 3.12 | 3.84 | 4.20 |
| **NATURAL GAS** | | | | | | | | | | | | | |
| ($/Mcf) | 1.24 | 1.28 | 1.35 | 1.46 | 1.66 | 1.94 | 2.14 | 2.50 | 2.64 | 3.19 | 3.81 | 4.51 | 5.57 |
| ($/Million Btu) | 1.20 | 1.24 | 1.31 | 1.43 | 1.62 | 1.89 | 2.09 | 2.45 | 2.58 | 3.13 | 3.73 | 4.41 | 5.45 |
| **PETROLEUM** | | | | | | | | | | | | | |
| Distillate Fuel | | | | | | | | | | | | | |
| (¢/Gallon) | 18.03 | 19.42 | 19.56 | 22.75 | 36.48 | 38.97 | 40.64 | 46.18 | 49.51 | 66.57 | 96.11 | 118.34 | 113.68 |
| ($/Million Btu) | 1.30 | 1.40 | 1.41 | 1.64 | 2.63 | 2.81 | 2.93 | 3.33 | 3.57 | 4.80 | 6.93 | 8.53 | 8.20 |
| Kerosene | | | | | | | | | | | | | |
| (¢/Gallon) | 21.20 | 21.87 | 21.33 | 24.57 | 39.02 | 42.12 | 44.01 | 49.55 | 52.52 | 71.28 | 108.95 | 139.23 | 132.27 |
| ($/Million Btu) | 1.57 | 1.62 | 1.58 | 1.82 | 2.89 | 3.12 | 3.26 | 3.67 | 3.89 | 5.28 | 8.07 | 10.31 | 9.80 |
| LPG | | | | | | | | | | | | | |
| (¢/Gallon) | 22.31 | 21.48 | 26.62 | 31.95 | 37.64 | 40.58 | 48.75 | 52.23 | 50.12 | 68.24 | 82.44 | 89.48 | 87.69 |
| ($/Million Btu) | 2.43 | 2.34 | 2.90 | 3.48 | 4.10 | 4.42 | 5.31 | 5.69 | 5.46 | 7.45 | 9.00 | 9.77 | 9.57 |
| **ELECTRICITY** | | | | | | | | | | | | | |
| ($/Thousand Kwh) | 24.36 | 27.60 | 29.14 | 30.81 | 38.62 | 43.61 | 44.39 | 47.80 | 49.85 | 53.30 | 60.87 | 63.24 | 88.10 |
| ($/Million Btu) | 7.14 | 8.09 | 8.54 | 9.03 | 11.32 | 12.78 | 13.01 | 14.01 | 14.61 | 15.62 | 17.84 | 18.53 | 25.82 |

**Note:** Anthracite prices for 1980 through 1982 and fuel oil prices for 1982 are estimated from periodic telephone surveys conducted by the Governor's Energy Council of anthracite dealers and fuel oil distributors. Electricity data is generated from monthly prices reported for Philadelphia and Pittsburgh, Pennsylvania. All other fuel price data are preliminary estimates.

**Sources:** U.S. Department of Energy, Energy Information Administration, *Energy Price and Expenditure Data Report, 1970-1980 (State and U.S. Total)*, July 1983; *Electric Power Monthly*.
Pacific Northwest Laboratory, *State Energy Price System: 1981 Update*, prepared for the Office of Energy Markets and End Use, Energy Information Administration, Department of Energy, July 1983.
Pennsylvania Governor's Energy Council, *Penn Energy*, newsletter.

## RESIDENTIAL SECTOR RETAIL ENERGY PRICES, 1970-1982
## PENNSYLVANIA



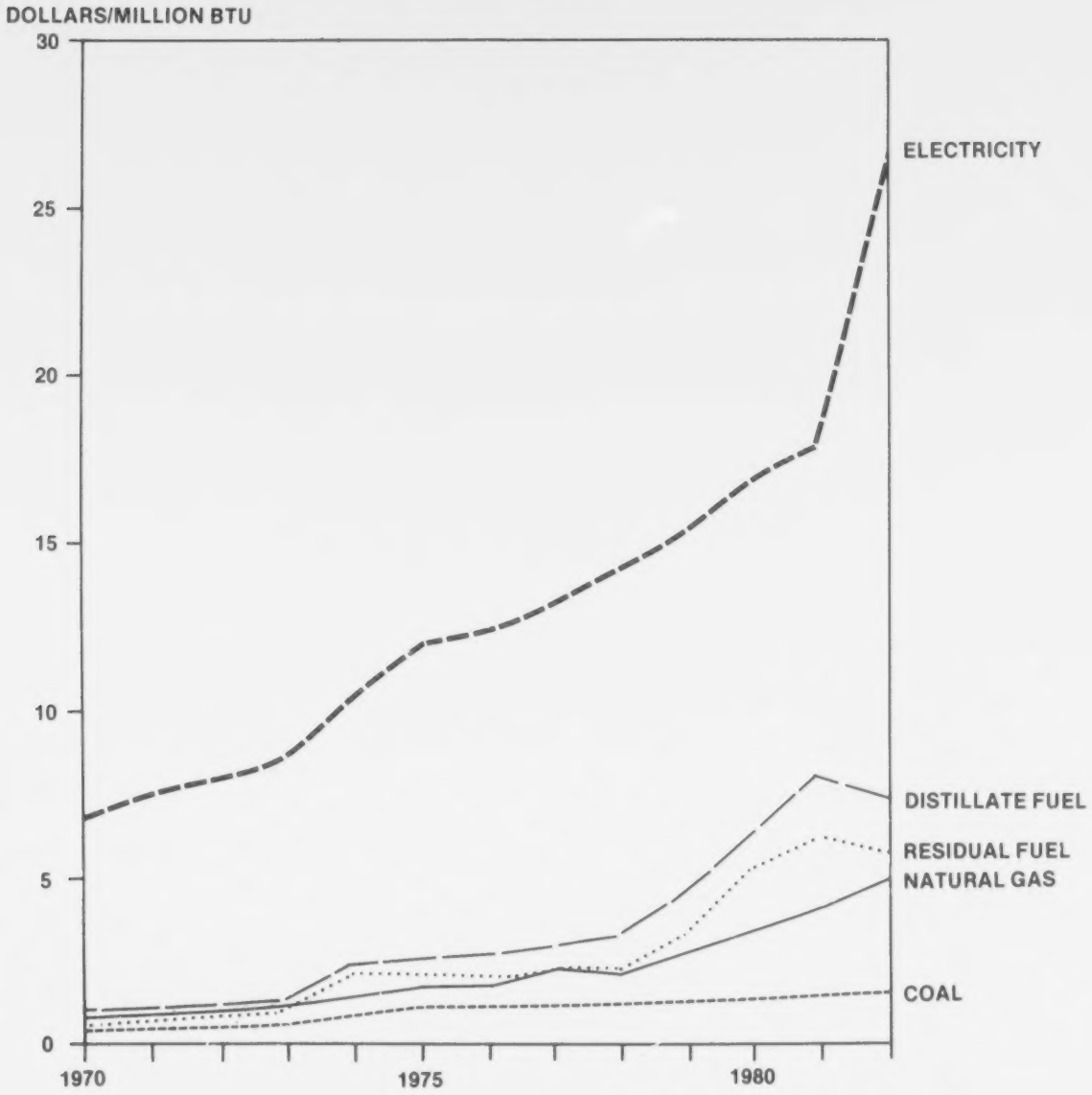
## COMMERCIAL SECTOR RETAIL ENERGY PRICES, 1970-1982
## PENNSYLVANIA

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **COAL** | | | | | | | | | | | | | |
| ($/Ton) | 7.54 | 10.14 | 9.36 | 9.93 | 20.90 | 29.42 | 26.90 | 27.14 | 30.08 | 31.33 | 32.20 | 37.91 | 39.05 |
| ($/Million Btu) | 0.29 | 0.39 | 0.36 | 0.37 | 0.80 | 1.14 | 1.04 | 1.08 | 1.20 | 1.25 | 1.24 | 1.46 | 1.50 |
| **NATURAL GAS** | | | | | | | | | | | | | |
| ($/Mcf) | 0.96 | 1.00 | 1.08 | 1.14 | 1.28 | 1.71 | 1.72 | 2.31 | 2.39 | 2.95 | 3.57 | 4.23 | 5.22 |
| ($/Million Btu) | 0.93 | 0.97 | 1.05 | 1.11 | 1.25 | 1.67 | 1.68 | 2.26 | 2.34 | 2.89 | 3.49 | 4.14 | 5.11 |
| **PETROLEUM** | | | | | | | | | | | | | |
| Distillate Fuel | | | | | | | | | | | | | |
| (¢/Gallon) | 15.39 | 16.50 | 16.50 | 19.14 | 32.87 | 35.37 | 37.03 | 42.72 | 45.21 | 62.69 | 90.00 | 112.68 | 105.92 |
| ($/Million Btu) | 1.11 | 1.19 | 1.19 | 1.38 | 2.37 | 2.55 | 2.67 | 3.08 | 3.26 | 4.52 | 6.49 | 8.12 | 7.64 |
| Kerosene | | | | | | | | | | | | | |
| (¢/Gallon) | 9.99 | 10.53 | 10.53 | 12.02 | 30.78 | 34.02 | 34.02 | 39.15 | 40.23 | 62.10 | 89.37 | 139.23 | 132.77 |
| ($/Million Btu) | 0.74 | 0.78 | 0.78 | 0.89 | 2.28 | 2.52 | 2.52 | 2.90 | 2.98 | 4.60 | 6.62 | 10.31 | 9.80 |
| LPG | | | | | | | | | | | | | |
| (¢/Gallon) | 13.14 | 13.20 | 13.16 | 13.92 | 28.50 | 26.37 | 29.89 | 32.20 | 33.56 | 37.14 | 50.98 | 57.99 | 56.25 |
| ($/Million Btu) | 1.46 | 1.47 | 1.47 | 1.56 | 3.21 | 2.98 | 3.38 | 3.68 | 3.84 | 4.24 | 5.82 | 6.81 | 6.42 |
| Motor Gasoline | | | | | | | | | | | | | |
| (¢/Gallon) | 36.52 | 37.15 | 36.77 | 37.90 | 55.03 | 59.03 | 60.28 | 64.04 | 63.91 | 87.55 | 121.44 | 136.04 | 127.27 |
| ($/Million Btu) | 2.92 | 2.97 | 2.94 | 3.03 | 4.40 | 4.72 | 4.82 | 5.12 | 5.11 | 7.00 | 9.71 | 10.88 | 10.18 |
| Residual Fuel | | | | | | | | | | | | | |
| ($/Barrel) | 3.27 | 4.28 | 4.72 | 5.65 | 13.33 | 13.27 | 12.57 | 14.65 | 14.27 | 21.00 | 33.26 | 38.67 | 36.35 |
| ($/Million Btu) | 0.52 | 0.68 | 0.75 | 0.90 | 2.12 | 2.11 | 2.00 | 2.33 | 2.27 | 3.34 | 5.29 | 6.15 | 5.78 |
| **ELECTRICITY** | | | | | | | | | | | | | |
| ($/Thousand Kwh) | 22.83 | 25.66 | 26.75 | 28.66 | 35.48 | 40.40 | 42.04 | 45.72 | 48.28 | 51.79 | 57.83 | 60.26 | 90.40 |
| ($/Million Btu) | 6.69 | 7.52 | 7.84 | 8.40 | 10.40 | 11.84 | 12.32 | 13.40 | 14.15 | 15.18 | 16.95 | 17.66 | 26.49 |

**Note:** 1982 data for electricity is generated from monthly prices reported for Philadelphia and Pittsburgh, Pennsylvania. This figure assumes the average commercial use to be 10,000 Kwh at a maximum rate of 40 Kw. All other fuel price data are preliminary estimates.

**Sources:** U.S. Department of Energy, Energy Information Administration, *Energy Price and Expenditure Data Report, 1970-1980 (State and U.S. Total)*, July 1983; *Electric Power Monthly*; *1982 Annual Energy Review*, April 1983; *Monthly Energy Review*.
Pacific Northwest Laboratory, *State Energy Price System: 1981 Update*, prepared for the Office of Energy Markets and End Use, Energy Information Administration, Department of Energy, July 1983.

## COMMERCIAL SECTOR RETAIL ENERGY PRICES, 1970-1982
## PENNSYLVANIA



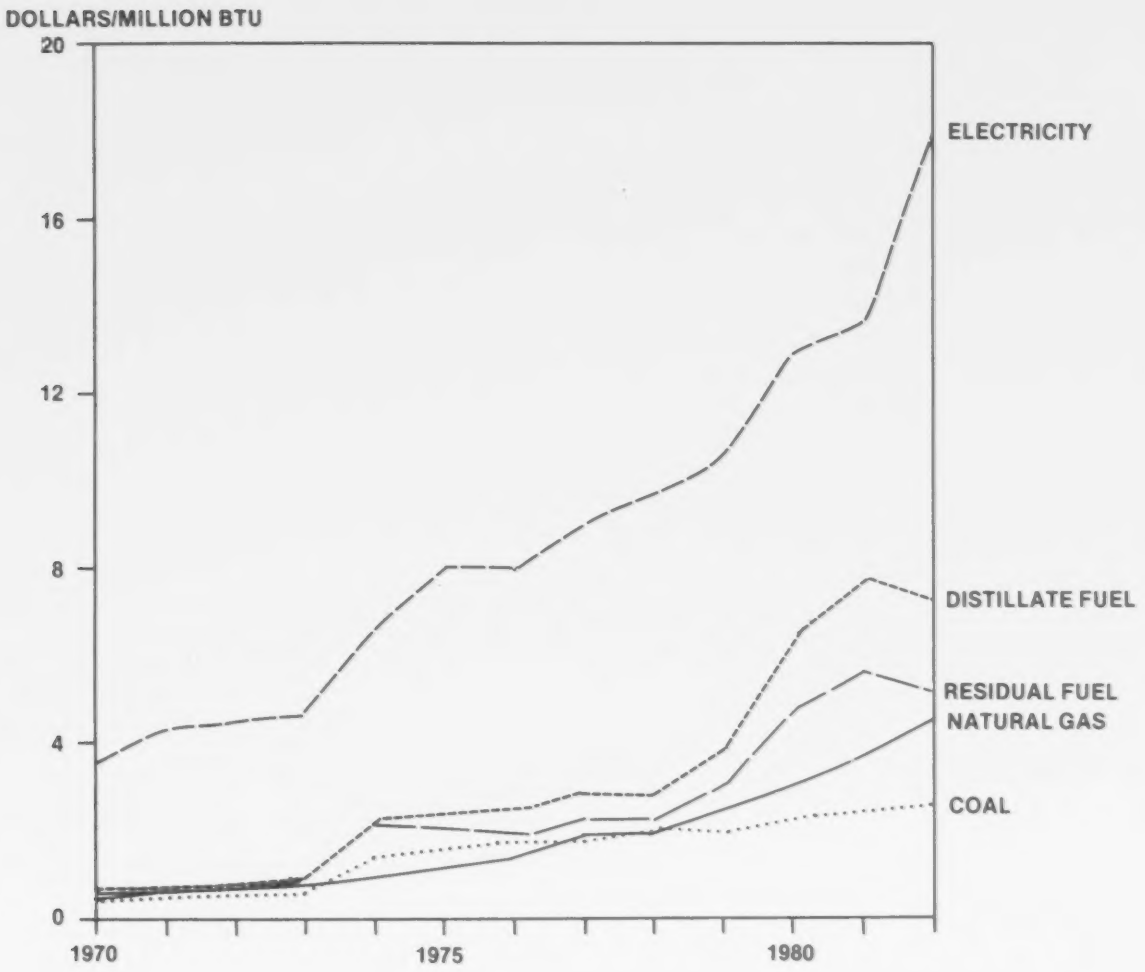
## INDUSTRIAL SECTOR RETAIL ENERGY PRICES, 1970-1982
## PENNSYLVANIA

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **COAL** | | | | | | | | | | | | | |
| Metallurgical Coal | | | | | | | | | | | | | |
| ($/Ton) | 11.70 | 12.48 | 14.82 | 17.94 | 36.40 | 40.82 | 43.42 | 43.42 | 53.04 | 50.44 | 59.02 | 63.59 | 65.50 |
| ($/Million Btu) | 0.45 | 0.48 | 0.57 | 0.69 | 1.40 | 1.57 | 1.67 | 1.67 | 2.04 | 1.94 | 2.27 | 2.45 | 2.52 |
| Other Coal | | | | | | | | | | | | | |
| ($/Ton) | 7.54 | 10.14 | 9.36 | 9.93 | 20.90 | 29.42 | 26.90 | 27.14 | 30.08 | 31.33 | 32.20 | 37.91 | 39.05 |
| ($/Million Btu) | 0.29 | 0.39 | 0.36 | 0.37 | 0.80 | 1.14 | 1.04 | 1.08 | 1.20 | 1.25 | 1.24 | 1.46 | 1.50 |
| **NATURAL GAS** | | | | | | | | | | | | | |
| ($/Mcf) | 0.59 | 0.65 | 0.72 | 0.75 | 0.94 | 1.10 | 1.34 | 1.91 | 2.01 | 2.51 | 3.07 | 3.73 | 4.70 |
| ($/Million Btu) | 0.57 | 0.63 | 0.70 | 0.73 | 0.92 | 1.07 | 1.31 | 1.87 | 1.97 | 2.45 | 3.00 | 3.65 | 4.60 |
| **PETROLEUM** | | | | | | | | | | | | | |
| Distillate Fuel | | | | | | | | | | | | | |
| (¢/Gallon) | 9.71 | 10.40 | 10.26 | 11.79 | 30.10 | 33.29 | 33.56 | 38.69 | 39.53 | 52.98 | 86.40 | 108.06 | 101.58 |
| ($/Million Btu) | 0.70 | 0.75 | 0.74 | 0.85 | 2.17 | 2.40 | 2.42 | 2.79 | 2.85 | 3.82 | 6.23 | 7.79 | 7.32 |
| Kerosene | | | | | | | | | | | | | |
| (¢/Gallon) | 9.99 | 10.53 | 10.53 | 12.02 | 30.78 | 34.02 | 34.02 | 39.15 | 40.23 | 62.10 | 89.37 | 139.23 | 132.27 |
| ($/Million Btu) | 0.74 | 0.78 | 0.78 | 0.89 | 2.28 | 2.52 | 2.52 | 2.90 | 2.98 | 4.60 | 6.62 | 10.31 | 9.80 |
| LPG | | | | | | | | | | | | | |
| (¢/Gallon) | 13.14 | 13.20 | 13.16 | 13.92 | 28.50 | 26.37 | 29.89 | 32.20 | 33.56 | 37.14 | 50.98 | 57.99 | 56.25 |
| ($/Million Btu) | 1.46 | 1.47 | 1.47 | 1.56 | 3.21 | 2.98 | 3.38 | 3.68 | 3.84 | 4.24 | 5.82 | 6.81 | 6.42 |
| Residual Fuel | | | | | | | | | | | | | |
| ($/Barrel) | 3.21 | 4.15 | 4.59 | 5.53 | 13.01 | 13.01 | 12.39 | 14.21 | 14.08 | 18.86 | 29.93 | 35.27 | 32.45 |
| ($/Million Btu) | 0.51 | 0.66 | 0.73 | 0.88 | 2.07 | 2.07 | 1.97 | 2.26 | 2.24 | 3.00 | 4.76 | 5.61 | 5.16 |
| Motor Gasoline | | | | | | | | | | | | | |
| (¢/Gallon) | 36.52 | 37.15 | 36.77 | 37.90 | 55.03 | 59.03 | 60.26 | 64.04 | 63.91 | 87.55 | 121.44 | 136.04 | 127.27 |
| ($/Million Btu) | 2.92 | 2.97 | 2.94 | 3.03 | 4.40 | 4.72 | 4.82 | 5.12 | 5.11 | 7.00 | 9.71 | 10.88 | 10.18 |
| Asphalt | | | | | | | | | | | | | |
| (¢/Gallon) | 12.32 | 13.75 | 13.75 | 13.90 | 26.07 | 31.13 | 31.13 | 32.86 | 35.39 | 42.50 | 58.78 | 70.00 | 101.00 |
| ($/Million Btu) | 0.78 | 0.87 | 0.87 | 0.88 | 1.65 | 1.97 | 1.97 | 2.08 | 2.24 | 2.69 | 3.72 | 4.43 | 6.39 |
| Road Oil | | | | | | | | | | | | | |
| (¢/Gallon) | 13.59 | 14.85 | 15.01 | 15.17 | 30.18 | 35.23 | 35.08 | 36.81 | 0.00 | 48.35 | 66.20 | 70.00 | 101.00 |
| ($/Million Btu) | 0.86 | 0.94 | 0.95 | 0.96 | 1.91 | 2.23 | 2.22 | 2.33 | 0.00 | 3.06 | 4.19 | 4.43 | 6.39 |
| Lubricants | | | | | | | | | | | | | |
| (¢/Gallon) | 87.07 | 85.77 | 86.64 | 86.64 | 123.46 | 135.01 | 134.73 | 141.80 | 144.40 | 181.08 | 211.55 | 265.00 | 260.00 |
| ($/Million Btu) | 6.03 | 5.94 | 6.00 | 6.00 | 8.55 | 9.35 | 9.33 | 9.82 | 10.00 | 12.54 | 14.65 | 18.35 | 18.01 |
| Jet Fuel | | | | | | | | | | | | | |
| (¢/Gallon) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28.76 | 31.19 | 35.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ($/Million Btu) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.13 | 2.31 | 2.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **ELECTRICITY** | | | | | | | | | | | | | |
| ($/Thousand Kwh) | 12.15 | 14.16 | 15.12 | 15.87 | 22.93 | 27.40 | 27.53 | 30.95 | 33.13 | 35.69 | 44.29 | 46.40 | 62.05 |
| ($/Million Btu) | 3.56 | 4.15 | 4.43 | 4.65 | 6.72 | 8.03 | 8.07 | 9.07 | 9.71 | 10.46 | 12.98 | 13.60 | 18.19 |

**Note:** 1982 data for asphalt, road oil and lubricants have been provided by the Pennsylvania Department of Transportation, Bureau of Fiscal Operations. Electricity data is generated from monthly prices reported for Philadelphia and Pittsburgh, Pennsylvania. This figure assumes the average industrial use to be 200,000 Kwh at a maximum rate of 500 Kw. All other fuel price data are preliminary estimates.

**Sources:** U.S. Department of Energy, Energy Information Administration, *Energy Price and Expenditure Data Report, 1970-1980 (State and U.S. Total)*, July 1983; *Electric Power Monthly*; *1982 Annual Energy Review*, April 1983; *Monthly Energy Review*.
Pacific Northwest Laboratory, *State Energy Price System: 1981 Update*, prepared for the Office of Energy Markets and End Use, Energy Information Administration, Department of Energy, July 1983.
Pennsylvania Department of Transportation, Bureau of Fiscal Operations, Payroll/Special Projects & Reports Division.

## INDUSTRIAL SECTOR RETAIL ENERGY PRICES, 1970-1982
## PENNSYLVANIA



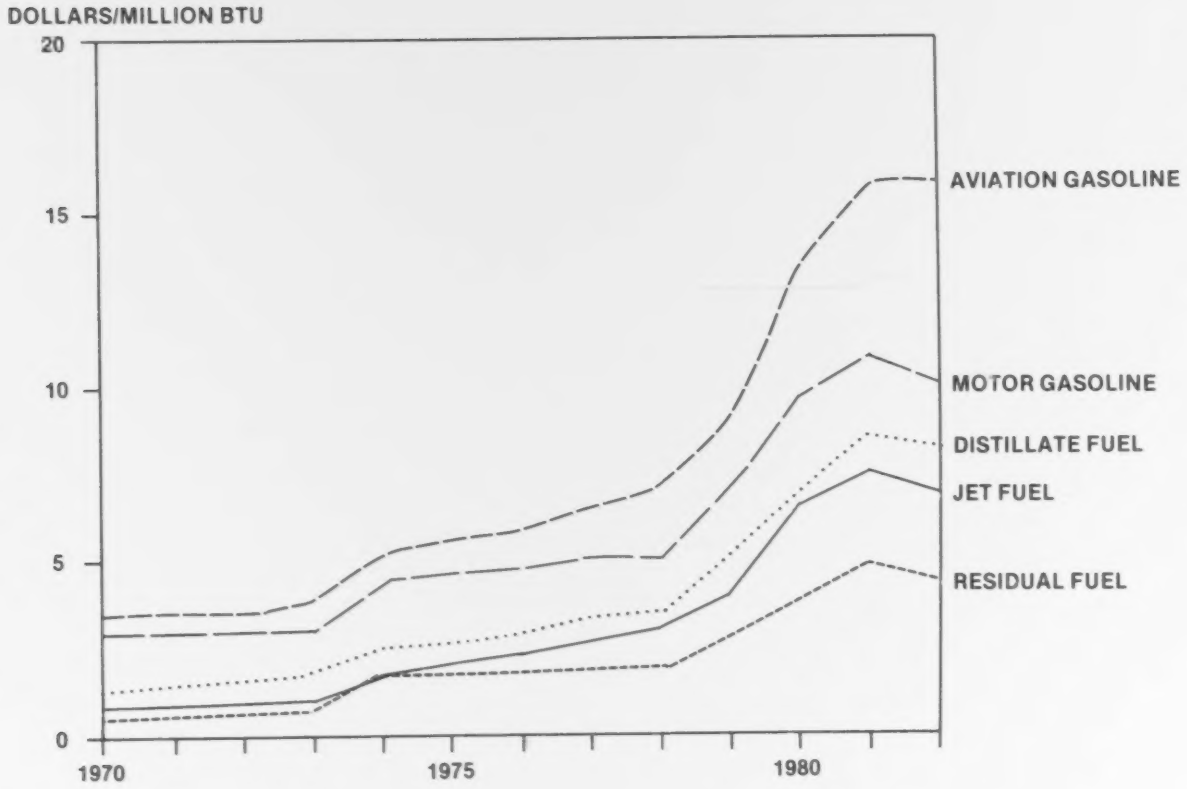
## TRANSPORTATION SECTOR RETAIL ENERGY PRICES, 1970-1982
## PENNSYLVANIA

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **COAL** | | | | | | | | | | | | | |
| ($/Ton) | 7.54 | 10.14 | 9.36 | 9.93 | 20.90 | 29.42 | 26.90 | 27.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ($/Million Btu) | 0.29 | 0.39 | 0.36 | 0.37 | 0.80 | 1.14 | 1.04 | 1.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **NATURAL GAS** | | | | | | | | | | | | | |
| ($/Mcf) | 0.25 | 0.29 | 0.31 | 0.32 | 0.40 | 0.53 | 0.59 | 0.92 | 0.94 | 1.43 | 1.89 | 2.34 | 3.02 |
| ($/Million Btu) | 0.24 | 0.28 | 0.30 | 0.31 | 0.39 | 0.52 | 0.58 | 0.90 | 0.92 | 1.40 | 1.85 | 2.29 | 2.95 |
| **PETROLEUM** | | | | | | | | | | | | | |
| Motor Gasoline | | | | | | | | | | | | | |
| (¢/Gallon) | 36.52 | 37.15 | 36.77 | 37.90 | 55.03 | 59.03 | 60.28 | 64.04 | 63.91 | 87.55 | 121.44 | 135.73 | 127.27 |
| ($/Million Btu) | 2.92 | 2.97 | 2.94 | 3.03 | 4.40 | 4.72 | 4.82 | 5.12 | 5.11 | 7.00 | 9.71 | 10.85 | 10.18 |
| Distillate Fuel | | | | | | | | | | | | | |
| (¢/Gallon) | 18.76 | 18.90 | 19.60 | 23.80 | 36.40 | 36.54 | 40.88 | 47.32 | 49.42 | 71.96 | 97.86 | 120.09 | 115.29 |
| ($/Million Btu) | 1.34 | 1.35 | 1.40 | 1.70 | 2.60 | 2.61 | 2.92 | 3.38 | 3.53 | 5.14 | 6.99 | 8.58 | 8.31 |
| Jet Fuel | | | | | | | | | | | | | |
| (¢/Gallon) | 10.26 | 10.80 | 10.80 | 12.83 | 22.01 | 28.76 | 31.19 | 35.91 | 40.91 | 55.08 | 89.64 | 101.08 | 95.02 |
| ($/Million Btu) | 0.76 | 0.80 | 0.80 | 0.95 | 1.63 | 2.13 | 2.31 | 2.66 | 3.03 | 4.08 | 6.64 | 7.49 | 7.04 |
| Residual Fuel | | | | | | | | | | | | | |
| ($/Barrel) | 2.64 | 3.46 | 3.84 | 4.59 | 10.75 | 10.75 | 10.50 | 11.95 | 11.07 | 17.35 | 24.90 | 30.77 | 27.69 |
| ($/Million Btu) | 0.42 | 0.55 | 0.61 | 0.73 | 1.71 | 1.71 | 1.67 | 1.90 | 1.76 | 2.76 | 3.96 | 4.89 | 4.40 |
| Lubricants | | | | | | | | | | | | | |
| (¢/Gallon) | 87.07 | 85.77 | 86.64 | 86.64 | 123.46 | 135.01 | 134.73 | 141.80 | 144.40 | 181.08 | 211.55 | 265.00 | 260.00 |
| ($/Million Btu) | 6.03 | 5.94 | 6.00 | 6.00 | 8.55 | 9.35 | 9.33 | 9.82 | 10.00 | 12.54 | 14.65 | 18.35 | 18.01 |
| Aviation Gasoline | | | | | | | | | | | | | |
| (¢/Gallon) | 41.52 | 42.24 | 42.00 | 45.12 | 62.88 | 67.68 | 69.96 | 77.40 | 84.60 | 106.80 | 160.80 | 188.33 | 189.54 |
| ($/Million Btu) | 3.46 | 3.52 | 3.50 | 3.76 | 5.24 | 5.64 | 5.83 | 6.45 | 7.05 | 8.90 | 13.40 | 15.69 | 15.80 |
| LPG | | | | | | | | | | | | | |
| (¢/Gallon) | 13.14 | 13.20 | 13.16 | 13.92 | 28.50 | 26.37 | 29.89 | 32.20 | 33.56 | 37.14 | 50.98 | 57.99 | 56.25 |
| ($/Million Btu) | 1.46 | 1.47 | 1.47 | 1.56 | 3.21 | 2.98 | 3.38 | 3.68 | 3.84 | 4.24 | 5.82 | 6.81 | 6.42 |
| **ELECTRICITY** | | | | | | | | | | | | | |
| ($/Thousand Kwh) | 12.48 | 15.22 | 16.62 | 17.81 | 25.59 | 28.69 | 29.27 | 31.87 | 31.87 | 31.70 | 51.90 | 62.84 | 70.38 |
| ($/Million Btu) | 3.66 | 4.46 | 4.87 | 5.22 | 7.50 | 8.41 | 8.58 | 9.34 | 9.34 | 9.29 | 15.21 | 18.42 | 20.63 |

**Note:** 1982 data for gasoline are estimated from the Lundberg price survey and based on the average price of regular grade gasoline sold in Philadelphia and Pittsburgh, Pennsylvania; retail price is for full service. Lubricant prices have been provided by the Preliminary Department of Transportation, Bureau of Fiscal Operations. All other fuel price data are preliminary estimates.

**Sources:** U.S. Department of Energy, Energy Information Administration, *Energy Price and Expenditure Data Report, 1970-1980 (State and U.S. Total)*, July 1983; *Electric Power Monthly*; *Monthly Energy Review*.
Pacific Northwest laboratory, *State Energy Price System: 1981 Update*, prepared for the Office of Energy Markets and End Use, Energy Information Administration, Department of Energy, July 1983.
Pennsylvania Department of Transportation, Bureau of Fiscal Operations, Payroll/Special Projects & Reports Division.
Dan Lundberg, *Lundberg Letter*.

## TRANSPORTATION SECTOR RETAIL ENERGY PRICES, 1970-1982
## PENNSYLVANIA



## BITUMINOUS AND ANTHRACITE COAL PRICES, 1970-1982
## PENNSYLVANIA

| | Bituminous F.O.B.[1] Mines | | Anthracite Preparation Plants | |
|---|---|---|---|---|
| | Dollars per Short Ton | | | |
| Year | Current | Constant [2] | Current | Constant [2] |
| 1970 | 7.27 | 7.95 | 11.03 | 12.06 |
| 1971 | 8.52 | 8.88 | 12.08 | 12.58 |
| 1972 | 9.14 | 9.14 | 12.40 | 12.40 |
| 1973 | 10.30 | 9.74 | 13.65 | 12.91 |
| 1974 | 20.35 | 17.68 | 22.19 | 19.28 |
| 1975 | 25.09 | 19.95 | 32.26 | 25.65 |
| 1976 | 25.33 | 19.14 | 33.92 | 25.63 |
| 1977 | 25.60 | 18.28 | 34.86 | 24.89 |
| 1978 | 27.86 | 18.52 | 35.25 | 23.43 |
| 1979 | 29.42 | 18.00 | 41.06 | 25.13 |
| 1980 | 30.34 | 16.98 | 42.51 | 23.80 |
| 1981 | 33.18 | 16.97 | 44.28 | 22.65 |
| 1982 [4] | 34.18 | 16.50 | 47.00 | 22.69 |
| | Dollars per Million Btu [3] | | | |
| 1970 | 0.30 | 0.32 | 0.47 | 0.52 |
| 1971 | 0.35 | 0.37 | 0.51 | 0.54 |
| 1972 | 0.38 | 0.38 | 0.53 | 0.53 |
| 1973 | 0.43 | 0.41 | 0.59 | 0.56 |
| 1974 | 0.86 | 0.75 | 0.98 | 0.85 |
| 1975 | 1.08 | 0.86 | 1.38 | 1.10 |
| 1976 | 1.09 | 0.83 | 1.49 | 1.13 |
| 1977 | 1.13 | 0.81 | 1.50 | 1.11 |
| 1978 | 1.24 | 0.83 | 1.50 | 1.00 |
| 1979 | 1.30 | 0.81 | 1.74 | 1.07 |
| 1980 | 1.35 | 0.76 | 1.82 | 1.02 |
| 1981 | 1.48 | 0.76 | 1.87 | 0.96 |
| 1982 [4] | 1.53 | 0.74 | 1.98 | 0.96 |

[1] *Free on Board.*

[2] *Constant 1972 prices calculated using GNP implicit price deflators, 1972 = 100.*

[3] *These price figures were calculated by using the annual production thermal conversion factors for bituminous and anthracite.*

[4] *Preliminary.*

**Note:** The figures shown do not include transportation costs. They are an average price of coal produced in Pennsylvania and are weighted by such cost differentials as method of mining and coal quantity.

**Sources:** Keystone Bituminous Coal Association, *Pennsylvania Coal Data 1983.*

U.S. Department of Interior, Bureau of Mines, *Minerals Yearbook*, "Coal-Bituminous and Lignite" and "Coal-Pennsylvania Anthracite."

U.S. Department of Energy, Energy Information Administration, *Coal Production — 1981*, December 1982; *1982 Annual Energy Review*, April 1983.

# SECTION FIVE

## ELECTRICITY

This section includes a diverse selection of data on the electric utility industry in Pennsylvania. The first two tables are designed to provide an inventory of electric generating facilities in the state by county for both existing and projected power plants as of December 1981. Included in these charts are the generator nameplate rating assigned by the generator manufacturer, the number of units each utility maintains and the primary source of fuel.

The generation of electricity for the total electric utility industry in Pennsylvania is provided for the years 1970 through 1982. Total generation of electricity increased 49 percent during that time period, rising from 78,673 million kilowatt-hours to 117,146 million kilowatt-hours. While coal continued to represent the greatest share of total electricity generation — 81.6 percent in 1970 and 80.3 percent in 1982, nuclear fuel showed a considerable increase over the 11-year period, rising from 0.6 percent in 1970 to 14.1 percent in 1982. The share of fuel oil declined from 16.9 percent in 1970 to 5.6 percent in 1982. Natural gas maintained its negligible share of less than 1 percent.

In addition, this section includes installed generating capacity by the type of prime mover driving the generator for the total electric utility industry in Pennsylvania from 1970 through 1982. Installed generating capacity rose from 19,558 megawatts in 1970 to 34,674 megawatts in 1982, an increase of 77 percent. Of the four types of prime movers listed, conventional steam represented the largest share of total installed generating capacity — 90.2 percent in 1970; in 1982 it had decreased to 77.5 percent. Hydro constituted 8.5 percent in 1970 and 4.8 percent in 1982. The share of nuclear steam rose from 0.8 percent in 1970 to 14.6 percent in 1982. The share of internal combustion remained relatively constant.

An analysis of fuel costs for electric generation for the electric utility industry is also provided for the period 1970 through 1982. The average costs of coal, oil and gas are presented in cents per million Btu and in dollars per physical unit. Oil has shown the largest increase in utility costs for electric generation and continued to be the most expensive, followed by gas and then coal.

A final table illustrates the manufacturing purchases of electricity by SIC industry group from 1976 to 1978. The survey conducted to generate this information was discontinued in 1978, which is the last year this data is available.

## PENNSYLVANIA'S EXISTING ELECTRIC GENERATING FACILITIES AS OF DECEMBER 1981 *

| Utility | Plant | County | Generator Nameplate Rating (MW) | Number of Units | Primary Fuel |
|---|---|---|---|---|---|
| Duquesne Light Company | Beaver Valley | Beaver | 923.0 | 1 | Nuclear |
| | Brunot Island | Allegheny | 417.9 | 7 | Oil |
| | Cheswick | Allegheny | 565.3 | 1 | Coal |
| | Elrama | Washington | 510.3 | 4 | Coal |
| | Phillips, F. | Allegheny | 411.3 | 4 | Coal |
| | Shippingport | Beaver | 100.0 | 1 | Nuclear |
| Pennsylvania Power & Light Co. | Allentown | Lehigh | 64.0 | 4 | Oil |
| | Brunner Island | York | 1,558.0 | 3 | Coal |
| | Brunner Island | York | 8.1 | 3 | Oil |
| | Fishbach | Schuylkill | 37.2 | 2 | Oil |
| | Harrisburg | Dauphin | 64.0 | 4 | Oil |
| | Harwood | Luzerne | 32.0 | 2 | Oil |
| | Holtwood | Lancaster | 75.0 | 1 | Coal |
| | Holtwood | Lancaster | 108.2 | 12 | Hydro |
| | Jenkins | Luzerne | 32.0 | 2 | Oil |
| | Lock Haven | Clinton | 18.6 | 1 | Oil |
| | Martins Creek | Northampton | 312.4 | 2 | Coal |
| | Martins Creek | Northampton | 1,801.0 | 8 | Oil |
| | Montour | Montour | 1,641.2 | 3 | Coal |
| | Suburban | Lackawanna | 29.2 | 1 | Oil |
| | Sunbury | Snyder | 410.0 | 4 | Coal |
| | Sunbury | Snyder | 52.6 | 4 | Oil |
| | Wallenpaupack | Pike | 40.0 | 2 | Hydro |
| | West Shore | Dauphin | 37.2 | 2 | Oil |
| | Williamsport | Lycoming | 32.0 | 2 | Oil |
| Pennsylvania Power Company | Bruce Mansfield | Beaver | 2,741.2 | 3 | Coal |
| | New Castle | Lawrence | 505.8 | 5 | Coal |
| | New Castle | Lawrence | 11.0 | 2 | Oil |
| Philadelphia Electric Company | Barbadoes | Montgomery | 46.0 | 3 | Oil |
| | Barbadoes | Montgomery | 23.0 | 1 | Natural Gas |
| | Chester | Chester | 55.8 | 4 | Oil |
| | Cromby | Chester | 420.2 | 3 | Oil |
| | Croydon | Bucks | 546.4 | 8 | Oil |

## PENNSYLVANIA'S EXISTING ELECTRIC GENERATING FACILITIES AS OF DECEMBER 1981*
## (Continued)

| Utility | Plant | County | Generator Nameplate Rating (MW) | Number of Units | Primary Fuel |
|---|---|---|---|---|---|
| | Delaware | Philadelphia | 392.5 | 7 | Oil |
| | Eddystone | Delaware | 707.6 | 2 | Coal |
| | Eddystone | Delaware | 861.8 | 6 | Oil |
| | Falls | Bucks | 63.9 | 3 | Oil |
| | Moser | Montgomery | 63.9 | 3 | Oil |
| | Muddy Run | Lancaster | 800.0 | 8 | Pumped Storage |
| | Peach Bottom | York | 2,196.6 | 2 | Nuclear |
| | Plymouth Meeting | Montgomery | 85.8 | 2 | Oil |
| | Richmond | Philadelphia | 921.9 | 21 | Oil |
| | Schuylkill | Philadelphia | 283.0 | 5 | Oil |
| | Southwark | Philadelphia | 422.2 | 7 | Oil |
| Safe Harbor Water Power Corporation | Safe Harbor | Lancaster | 230.0 | 9 | Hydro |
| UGI Corporation | Hunlock Creek | Luzerne | 50.0 | 1 | Coal |
| GPU: Metropolitan Edison Company | Hamilton | Adams | 19.6 | 1 | Oil |
| | Hunterstown | Adams | 58.8 | 3 | Oil |
| | Mountain | Cumberland | 53.2 | 2 | Oil |
| | Orrtanna | Adams | 19.6 | 1 | Oil |
| | Portland | Northampton | 426.7 | 2 | Coal |
| | Portland | Northampton | 37.6 | 2 | Natural Gas |
| | Shawnee | Northampton | 19.6 | 1 | Oil |
| | Three Mile Island | Dauphin | 1,832.2 | 2 | Nuclear |
| | Titus | Berks | 225.0 | 3 | Coal |
| | Titus | Berks | 35.6 | 2 | Oil |
| | Tolna | York | 53.2 | 2 | Oil |
| | Yorkhaven | Dauphin | 19.6 | 1 | Hydro |
| GPU: Pennsylvania Electric Company | Benton | Sullivan | 4.0 | 2 | Oil |
| | Blossburg | Sullivan | 23.0 | 1 | Natural Gas |
| | Conemaugh | Indiana | 1,872.0 | 2 | Coal |
| | Conemaugh | Indiana | 11.2 | 4 | Oil |
| | Deep Creek | Clarion | 19.2 | 2 | Hydro |
| | Front Street | Erie | 118.8 | 5 | Coal |
| | Homer City | Indiana | 2,012.0 | 3 | Coal |
| | Homer City | Indiana | 6.0 | 3 | Oil |

## PENNSYLVANIA'S EXISTING ELECTRIC GENERATING FACILITIES AS OF DECEMBER 1981*
## (Continued)

| Utility | Plant | County | Generator Nameplate Rating (MW) | Number of Units | Primary Fuel |
|---|---|---|---|---|---|
| | Keystone | Armstrong | 1,872.0 | 2 | Coal |
| | Keystone | Armstrong | 8.6 | 4 | Oil |
| | Piney | Clarion | 28.8 | 3 | Hydro |
| | Seneca | Warren | 422.1 | 3 | Pumped Storage |
| | Seward | Indiana | 175.0 | 2 | Coal |
| | Shawville | Clearfield | 628.0 | 4 | Coal |
| | Shawville | Clearfield | 6.0 | 3 | Oil |
| | Warren | Warren | 80.0 | 2 | Coal |
| | Warren | Warren | 53.0 | 1 | Oil |
| | Warrior Ridge | Huntingdon | 2.0 | 1 | Hydro |
| | Wayne | Crawford | 54.0 | 1 | Oil |
| | Williamsburg | Blair | 33.0 | 1 | Coal |
| APS: West Penn Power Company | Armstrong | Armstrong | 326.4 | 2 | Coal |
| | Hatfield's Ferry | Greene | 1,728.0 | 3 | Coal |
| | Milesburg | Centre | 46.0 | 2 | Oil |
| | Mitchell | Washington | 299.2 | 1 | Coal |
| | Mitchell | Washington | 149.6 | 2 | Oil |
| | Springdale | Allegheny | 215.4 | 2 | Oil |

** This is an inventory of existing power plants in the Commonwealth. Pennsylvania utilities do not own all of this capacity, nor does this inventory include Pennsylvania-owned capacity located outside Pennsylvania.*

*[1] Currently shut down.*

**Sources:** U.S. Department of Energy, Energy Information Administration, *Inventory of Power Plants in the United States — 1981 Annual.* Pennsylvania Public Utility Commission, *Power System Statement*, PUC Docket 138.

## PENNSYLVANIA'S PROJECTED ELECTRIC GENERATING FACILITIES AS OF DECEMBER 1981 *

| Utility | Plant | County | Unit Number | Generator Nameplate Rating (MW) | Primary Fuel | In-Service Date |
|---|---|---|---|---|---|---|
| APS/West Penn Power Co. | Unidentified | | 1 | 630.0 | Coal | 3 Qtr., 1991 |
| | | | 2 | 630.0 | Coal | 3 Qtr., 1993 |
| Duquesne Light | Beaver Valley | Beaver | 2 | 862.0 | Nuclear | 2 Qtr., 1986 |
| GPU-Pennsylvania Electric Co. | Raystown | Huntingdon | 1 | 2.0 | Hydro | 1 Qtr., 1988 |
| Pennsylvania Power & Light Co. | Susquehanna | Luzerne | 1 | 1,050.0 | Nuclear | 2 Qtr., 1983 |
| | | | 2 | 1,050.0 | Nuclear | 4 Qtr., 1984 |
| Philadelphia Electric Co. | Limerick | Montgomery | 1 | 1,055.0 | Nuclear | 2 Qtr., 1985 |
| | | | 2 | 1,055.0 | Nuclear | 4 Qtr., 1988 |
| Safe Harbor Water Power Corp. | Safe Harbor | Lancaster | 8 | 188.0 | Hydro | 4 Qtr., 1985 |

** This is an inventory of projected power plants in the Commonwealth. Pennsylvania utilities do not own all of this capacity, nor does this inventory include Pennsylvania-owned capacity located outside Pennsylvania.*

**Sources:** U.S. Department of Energy, Energy Information Administration, *Inventory of Power Plants in the United States — 1981 Annual.* Pennsylvania Public Utility Commission, *Power System Statement*, PUC Docket 138.

## GENERATION OF ELECTRICITY BY FUEL TYPE, 1970-1982
## PENNSYLVANIA
### Million Kilowatt-hours

| Year | Coal | Fuel Oil | Natural Gas | Nuclear Fuel | Total [1] |
|---|---|---|---|---|---|
| 1970 | 64,200 | 13,333 | 675 | 465 | 78,673 |
| 1971 | 72,661 | 13,530 | 721 | 445 | 87,357 |
| 1972 | 82,009 | 13,649 | 377 | 288 | 96,323 |
| 1973 | 91,398 | 10,584 | 178 | 361 | 102,521 |
| 1974 | 78,323 | 11,629 | 542 | 6,998 | 97,492 |
| 1975 | 83,546 | 7,159 | 82 | 15,872 | 106,659 |
| 1976 | 87,514 | 9,567 | 33 | 16,431 | 113,545 |
| 1977 | 83,715 | 14,054 | 22 | 17,821 | 115,612 |
| 1978 | 83,235 | 16,221 | 33 | 22,329 | 121,818 |
| 1979 | 95,555 | 12,066 | 122 | 18,796 | 126,539 |
| 1980 | 98,756 | 10,727 | 200 | 12,093 | 121,776 |
| 1981 | 92,059 | 9,377 | 225 | 14,277 | 115,938 |
| 1982 [2] | 94,018 | 6,539 | 117 | 16,472 | 117,146 |

[1] *Excludes generation by geothermal, wood and waste, and hydroelectric power.*
[2] *Preliminary.*

**Sources:** Edison Electric Institute, *Statistical Year Book of the Electric Utility Industry, (1970-1981).*
U.S. Department of Energy, Energy Information Administration, *Electric Power Annual-1982*, August 1983; Office of Coal, Nuclear, Electric and Alternate Fuels.

## INSTALLED GENERATING CAPACITY OF ELECTRIC UTILITIES BY TYPE OF PRIME MOVER, 1970-1982
## PENNSYLVANIA
### Megawatts (Nameplate)

| Year | Hydro | Conventional Steam | Nuclear Steam | Internal Combustion | Total |
|---|---|---|---|---|---|
| 1970 | 1,653 | 17,638 | 156 | 111 | 19,558 |
| 1971 | 1,652 | 19,030 | 156 | 109 | 20,947 |
| 1972 | 1,651 | 20,858 | 156 | 109 | 22,775 |
| 1973 | 1,651 | 21,812 | 156 | 107 | 23,726 |
| 1974 | 1,651 | 22,113 | 3,321 | 99 | 27,184 |
| 1975 | 1,651 | 22,701 | 3,275 | 98 | 22,725 |
| 1976 | 1,651 | 24,153 | 4,163 | 98 | 30,065 |
| 1977 | 1,651 | 26,308 | 4,198 | 93 | 32,250 |
| 1978 | 1,651 | 26,388 | 5,159 | 89 | 33,287 |
| 1979 | 1,651 | 26,566 | 5,159 | 93 | 33,469 |
| 1980 | 1,651 | 27,479 | 5,159 | 93 | 34,382 |
| 1981 | 1,651 | 27,479 | 5,159 | 93 | 34,382 |
| 1982 | 1,649 | 26,873 | 5,059 | 93 | 34,674 |

**Sources:** Edison Electric Institute, *Statistical Year Book of the Electric Utility Industry, (1970-1981).*
U.S. Department of Energy, Energy Information Administration, *Electric Power Annual—1982*, August 1983.

## UTILITY FUEL COSTS FOR ELECTRIC GENERATION, 1970-1982
## PENNSYLVANIA

| | Coal [1] | | Oil [2] | | Gas [3] | | Composite Averages | |
|---|---|---|---|---|---|---|---|---|
| Year | ¢/MMBtu | $/Ton | ¢/MMBtu | $/Bbl | ¢/MMBtu | ¢/Mcf | ¢/MMBtu | ¢/Net Kwhr |
| 1970 | 31.4 | 7.30 | 46.6 | 2.83 | 45.1 | 44.3 | 34.5 | 0.38 |
| 1971 | 36.2 | 8.63 | 71.8 | 4.35 | 64.1 | 66.1 | 42.5 | 0.46 |
| 1972 | 40.0 | 9.89 | 72.9 | 4.37 | 67.5 | 69.2 | 45.3 | 0.48 |
| 1973 | 45.4 | 10.86 | 89.2 | 5.31 | 72.9 | 73.9 | 50.6 | 0.53 |
| 1974 | 74.7 | 17.42 | 206.3 | 12.37 | 113.0 | 114.8 | 93.3 | 0.99 |
| 1975 | 97.3 | 22.70 | 219.1 | 13.11 | 137.7 | 139.2 | 107.8 | 1.10 |
| 1976 | 100.3 | 23.82 | 211.4 | 12.76 | 133.6 | 133.7 | 111.9 | 1.15 |
| 1977 | 104.9 | 24.86 | 224.5 | 13.58 | 176.5 | 176.5 | 123.6 | 1.30 |
| 1978 | 121.8 | 28.81 | 233.5 | 14.16 | 191.8 | 191.8 | 140.8 | 1.48 |
| 1979 | 125.5 | 30.04 | 320.5 | 19.61 | 251.2 | 254.3 | 148.6 | 1.55 |
| 1980 | 137.1 | 33.06 | 455.1 | 28.00 | 342.4 | 347.7 | 171.1 | 1.78 |
| 1981 | 166.0 | 39.78 | 557.4 | 34.11 | 396.8 | 398.0 | 204.6 | 2.13 |
| 1982 [4] | 163.5 | 39.68 | 532.1 | 32.79 | 409.5 | 413.0 | – | – |

[1] *Coal includes bituminous and anthracite coal and relatively small amounts of coke, lignite, and wood.*
[2] *Oil includes fuel oil, crude oil, and small amounts of tar and gasoline.*
[3] *Gas includes natural and manufactured gas and waste gas.*
[4] *Preliminary.*

**Sources:** Edison Electric Institute, *Statistical Year Book of the Electric Utility Industry*, (1970-1981).
U.S. Department of Energy, Energy Information Administration, *Electric Power Annual—1982*, August 1983.

## MANUFACTURING PURCHASES OF ELECTRICITY BY SIC INDUSTRY GROUP, 1976-1978
## PENNSYLVANIA
### Million Kilowatt-hours

| SIC | Industry Group | 1976 | 1977 | 1978 |
|---|---|---|---|---|
| 20 | Food and Kindred Products | 1,702 | 1,683 | 1,763 |
| 21 | Tobacco Manufacturers | 33 | 34 | 33 |
| 22 | Textile Mill Products | 694 | 656 | 628 |
| 23 | Apparel and Other Textile Products | 324 | 293 | 358 |
| 24 | Lumber and Wood Products | 202 | 223 | 234 |
| 25 | Furniture and Fixtures | 129 | 155 | 154 |
| 26 | Paper and Allied Products | 1,747 | 1,767 | 1,867 |
| 27 | Printing and Publishing | 471 | 448 | 460 |
| 28 | Chemicals and Allied Products | 1,814 | 1,733 | 2,041 |
| 29 | Petroleum and Coal Products | 1,328 | 1,290 | 1,374 |
| 30 | Rubber and Plastic Products | 984 | 1,047 | 1,018 |
| 31 | Leather and Leather Products | 98 | 80 | 76 |
| 32 | Stone, Clay and Glass Products | 2,492 | 2,590 | 2,814 |
| 33 | Primary Metal Products | 12,181 | 13,285 | 13,332 |
| 34 | Fabricated Metal Products | 1,982 | 2,039 | 2,178 |
| 35 | Machinery, Except Electrical | 1,559 | 1,557 | 1,605 |
| 36 | Electrical Equipment and Supplies | 1,689 | 1,732 | 1,767 |
| 37 | Transportation Equipment | 857 | 920 | 1,044 |
| 38 | Instruments and Related Products | 302 | 298 | 305 |
| 39 | Miscellaneous | 190 | 299 | 305 |
| Total All Industries | | 30,775 | 32,129 | 33,355 |

**Source:** Pennsylvania Department of Commerce, Bureau of Statistics, Research and Planning, *Energy Used by Pennsylvania Manufacturers*, (1976-1978). 1978 was the last year this report was published.

# APPENDICES


A. Non-Energy Petroleum Products . . . . . .
B. Selected Macroeconomic Energy Indicators, Pennsylvania
C. Selected Macroeconomic Energy Indicators, United States
D. Heating Degree Days for Pennsylvania and Selected Cities
E. Cooling Degree Days for Pennsylvania and Selected Cities.
F. Pennsylvania and United States Census Data for Home Heating Fuels . . . . . .
G. United States Price Indices . . . . . .
H. Selected OPEC Energy Data . . . . . .
I. United States Petroleum Imports . . . . . .
J. Glossary . . . . . .
K. Petroleum Administration for Defense (PAD) Districts . . .
L. Conversion Factors

# APPENDIX A
# NON-ENERGY PETROLEUM PRODUCTS, 1960-1981
# PENNSYLVANIA

| Year | Thousand Barrels | | | | |
|---|---|---|---|---|---|
| | Asphalt | Lubricants | Road Oil | Others | Total |
| 1960 | 4,690 | 2,775 | 42 | 13,037 | 20,544 |
| 1961 | 4,705 | 2,701 | 36 | 13,569 | 21,011 |
| 1962 | 4,803 | 2,867 | 56 | 13,973 | 21,699 |
| 1963 | 4,895 | 2,866 | 40 | 15,969 | 23,770 |
| 1964 | 5,323 | 3,010 | 25 | 17,896 | 26,254 |
| 1965 | 6,173 | 3,540 | 29 | 19,131 | 28,873 |
| 1966 | 5,869 | 3,678 | 31 | 19,882 | 29,460 |
| 1967 | 6,361 | 3,276 | 31 | 19,060 | 28,728 |
| 1968 | 6,566 | 3,598 | 26 | 19,419 | 29,609 |
| 1969 | 6,379 | 3,774 | 51 | 19,113 | 29,317 |
| 1970 | 6,546 | 3,844 | 54 | 19,641 | 30,085 |
| 1971 | 6,654 | 3,629 | 6 | 19,773 | 30,062 |
| 1972 | 7,149 | 3,886 | 4 | 20,602 | 31,641 |
| 1973 | 6,973 | 4,795 | 3 | 22,131 | 33,902 |
| 1974 | 6,592 | 4,593 | 87 | 22,840 | 34,112 |
| 1975 | 5,661 | 3,349 | 2 | 20,708 | 29,720 |
| 1976 | 6,304 | 3,720 | 1 | 23,738 | 33,763 |
| 1977 | 6,569 | 4,066 | 0 | 26,832 | 37,467 |
| 1978 | 6,330 | 4,367 | 0 | 27,205 | 37,902 |
| 1979 | 6,330 | 4,569 | 24 | 26,749 | 37,672 |
| 1980 | 5,116 | 4,069 | 32 | 22,264 | 31,481 |
| 1981 | 3,646 | 3,902 | 22 | 16,523 | 24,093 |

| Year | Trillion Btu | | | | |
|---|---|---|---|---|---|
| | Asphalt | Lubricants | Road Oil | Others | Total |
| 1960 | 31.1 | 16.8 | 0.3 | 83.2 | 131.4 |
| 1961 | 31.2 | 16.4 | 0.2 | 86.5 | 134.3 |
| 1962 | 31.9 | 17.4 | 0.4 | 89.2 | 138.9 |
| 1963 | 32.5 | 17.4 | 0.3 | 101.2 | 151.4 |
| 1964 | 35.3 | 18.3 | 0.2 | 112.7 | 166.5 |
| 1965 | 41.0 | 21.5 | 0.2 | 120.6 | 183.3 |
| 1966 | 38.9 | 22.3 | 0.2 | 124.7 | 186.1 |
| 1967 | 42.2 | 19.9 | 0.2 | 120.3 | 182.6 |
| 1968 | 43.6 | 21.8 | 0.2 | 123.2 | 188.8 |
| 1969 | 42.3 | 22.9 | 0.3 | 122.3 | 187.8 |
| 1970 | 43.4 | 23.3 | 0.4 | 125.7 | 192.8 |
| 1971 | 44.2 | 22.0 | * | 126.6 | 192.8 |
| 1972 | 47.4 | 23.6 | * | 133.0 | 204.0 |
| 1973 | 46.3 | 29.1 | * | 142.6 | 218.0 |
| 1974 | 43.7 | 27.9 | 0.6 | 147.7 | 219.9 |
| 1975 | 37.6 | 20.3 | * | 133.8 | 191.7 |
| 1976 | 41.8 | 22.6 | * | 152.6 | 217.0 |
| 1977 | 43.6 | 24.7 | * | 172.3 | 240.6 |
| 1978 | 42.0 | 26.5 | 0.0 | 172.8 | 241.3 |
| 1979 | 42.0 | 27.7 | 0.2 | 169.9 | 239.8 |
| 1980 | 34.0 | 24.7 | 0.2 | 142.1 | 201.0 |
| 1981 | 24.2 | 23.7 | 0.1 | 104.2 | 152.2 |

* *Represents small, non-zero value.*

**Source:** U.S. Department of Energy, Energy Information Administration, *State Energy Data Report*, June 1983.

## APPENDIX B
## SELECTED MACROECONOMIC ENERGY INDICATORS, 1960-1981
## PENNSYLVANIA

| Year | Population (Thousands) | Gross State Product (Billions of 1972 Dollars | Primary Energy Consumption (T-Btu's) | Refined Petroleum Consumption (T-Btu's) | Primary Consumption Per Capita (MMBtu) | Primary Consumption Per G.S.P. (MBtu/72$) | Petroleum Consumption Per Capita (MMBtu) | Petroleum Consumption Per G.S.P. (MBtu/72$) |
|---|---|---|---|---|---|---|---|---|
| 1960 | 11,319 | 45.7 | 3,101.6 | 1,009.8 | 274.0 | 67.9 | 89.2 | 22.1 |
| 1961 | 11,387 | 45.0 | 2,986.9 | 986.1 | 262.3 | 66.4 | 86.6 | 21.9 |
| 1962 | 11,336 | 46.5 | 3,099.3 | 1,034.2 | 273.4 | 66.7 | 91.2 | 22.2 |
| 1963 | 11,408 | 50.2 | 3,231.5 | 1,059.5 | 283.3 | 64.4 | 92.9 | 21.1 |
| 1964 | 11,505 | 50.9 | 3,441.6 | 1,066.7 | 299.1 | 67.6 | 92.7 | 21.0 |
| 1965 | 11,618 | 53.9 | 3,566.3 | 1,105.9 | 307.0 | 66.2 | 95.2 | 20.5 |
| 1966 | 11,657 | 57.6 | 3,667.6 | 1,148.4 | 314.6 | 63.7 | 98.5 | 19.9 |
| 1967 | 11,672 | 58.6 | 3,654.6 | 1,174.6 | 313.1 | 62.4 | 100.6 | 20.0 |
| 1968 | 11,750 | 60.1 | 3,768.7 | 1,237.4 | 320.7 | 62.7 | 105.3 | 20.6 |
| 1969 | 11,803 | 61.2 | 3,783.0 | 1,302.3 | 320.5 | 61.8 | 110.3 | 21.3 |
| 1970 | 11,801 | 60.1 | 3,953.4 | 1,382.6 | 335.0 | 65.8 | 117.2 | 23.0 |
| 1971 | 11,864 | 60.7 | 3,930.6 | 1,411.8 | 331.3 | 64.8 | 119.0 | 23.3 |
| 1972 | 11,871 | 63.8 | 4,087.8 | 1,497.3 | 344.4 | 64.1 | 126.1 | 23.5 |
| 1973 | 11,840 | 67.0 | 4,154.2 | 1,496.4 | 350.9 | 62.0 | 126.4 | 22.3 |
| 1974 | 11,807 | 65.8 | 3,941.7 | 1,443.4 | 333.8 | 59.9 | 122.2 | 21.9 |
| 1975 | 11,829 | 64.3 | 3,867.1 | 1,322.0 | 326.9 | 60.1 | 111.8 | 20.6 |
| 1976 | 11,807 | 67.0 | 4,098.7 | 1,466.2 | 347.1 | 61.2 | 124.2 | 21.9 |
| 1977 | 11,791 | 68.9 | 4,005.0 | 1,553.7 | 339.7 | 58.1 | 131.8 | 22.6 |
| 1978 | 11,763 | 71.7 | 4,016.9 | 1,540.9 | 341.5 | 56.0 | 131.0 | 21.5 |
| 1979 | 11,731 | 70.5 | 4,141.7 | 1,455.1 | 353.1 | 58.7 | 124.0 | 20.6 |
| 1980 | 11,864 | 71.7 | 3,829.0 | 1,288.9 | 322.7 | 53.4 | 108.6 | 18.0 |
| 1981 | 11,871 | 72.0 | 3,620.6 | 1,183.3 | 305.0 | 50.3 | 99.7 | 16.4 |

**Sources:** U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population*, Supplementary Reports, PC80-S1-1.
U.S. Department of Energy, Energy Information, *State Energy Data Report*, June 1983.
Pennsylvania Department of Commerce, Bureau of Statistics, Research and Planning. 1982 *Pennsylvania Abstract*.

## APPENDIX C
## SELECTED MACROECONOMIC ENERGY INDICATORS, 1960-1981
## UNITED STATES

| Year | Population (Thousands) | Gross National Product (Billions of 1972 Dollars) | Primary Energy Consumption (T-Btu's) | Refined Petroleum Consumption (T-Btu's) | Primary Consumptions Per Capita (MMBtu) | Primary Consumption Per G.N.P. (MBtu/72$) | Petroleum Consumption Per Capita (MMBtu) | Petroleum Consumption Per G.N.P. (MBtu/72$) |
|---|---|---|---|---|---|---|---|---|
| 1960 | 179,979 | 737.2 | 41,815.1 | 17,651.1 | 232.3 | 56.7 | 98.1 | 23.9 |
| 1961 | 182,992 | 756.6 | 42,365.0 | 17,852.5 | 231.5 | 56.0 | 97.6 | 23.6 |
| 1962 | 185,771 | 800.3 | 44,319.8 | 18,568.9 | 238.6 | 55.4 | 100.0 | 23.2 |
| 1963 | 188,483 | 832.5 | 45,913.6 | 19,005.7 | 243.6 | 55.2 | 100.8 | 22.8 |
| 1964 | 191,141 | 876.4 | 47,868.3 | 19,387.5 | 250.4 | 54.6 | 101.4 | 22.1 |
| 1965 | 193,526 | 929.3 | 49,992.3 | 20,236.4 | 258.3 | 53.8 | 104.6 | 21.8 |
| 1966 | 195,576 | 984.8 | 52,833.3 | 21,222.2 | 270.1 | 53.6 | 108.5 | 21.5 |
| 1967 | 197,457 | 1,011.4 | 54,712.1 | 22,096.6 | 277.1 | 54.1 | 111.9 | 21.8 |
| 1968 | 199,399 | 1,058.1 | 57,911.8 | 23,561.5 | 290.4 | 54.7 | 118.2 | 22.3 |
| 1969 | 201,385 | 1,087.6 | 60 999.3 | 24,788.5 | 302.9 | 56.1 | 123.1 | 22.8 |
| 1970 | 203,810 | 1,085.6 | 63,206.2 | 25,854.4 | 310.1 | 58.2 | 126.9 | 23.8 |
| 1971 | 206,219 | 1,122.4 | 64,603.1 | 26,847.9 | 313.3 | 57.6 | 130.2 | 23.9 |
| 1972 | 208,234 | 1,185.9 | 67,629.6 | 28,956.5 | 324.8 | 57.0 | 139.1 | 24.4 |
| 1973 | 209,859 | 1,255.0 | 70,254.6 | 30,527.3 | 334.8 | 56.0 | 145.5 | 24.3 |
| 1974 | 211,389 | 1,248.0 | 68,435.1 | 29,248.5 | 323.7 | 54.8 | 138.4 | 23.4 |
| 1975 | 213,051 | 1,233.9 | 66,653.1 | 28,762.1 | 312.9 | 54.0 | 135.0 | 23.3 |
| 1976 | 214,680 | 1,300.4 | 70,142.5 | 30,891.8 | 326.7 | 53.9 | 143.9 | 23.8 |
| 1977 | 216,400 | 1,371.7 | 71,514.9 | 32,401.0 | 330.5 | 52.1 | 149.7 | 23.6 |
| 1978 | 218,228 | 1,436.9 | 72,958.2 | 32 933.4 | 334.3 | 50.8 | 150.9 | 22.9 |
| 1979 | 220,099 | 1,483.0 | 73,438.9 | 31,813.0 | 333.7 | 49.5 | 144.5 | 21.5 |
| 1980 | 226,546 | 1,480.7 | 70,829.0 | 29,089.2 | 312.6 | 47.8 | 128.4 | 19.6 |
| 1981 | 229,348 | 1,510.3 | 69,710.1 | 27,765.7 | 304.1 | 46.2 | 121.1 | 18.4 |

*Sources:* U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1982-1983.
U.S. Department of Commerce, Bureau of Economic Analysis.
U.S. Department of Energy, Energy Information Administration, *State Energy Data Report*, June 1983.

## APPENDIX D
## HEATING DEGREE DAYS FOR PENNSYLVANIA AND SELECTED CITIES

| Season | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PENNSYLVANIA** | | | | | | | | | | | | | |
| 1973/74 | 4 | 4 | 73 | 309 | 626 | 962 | 993 | 999 | 779 | 414 | 223 | 58 | 5,444 |
| 1974/75 | 8 | 10 | 132 | 471 | 639 | 955 | 1,007 | 932 | 876 | 618 | 123 | 28 | 5,799 |
| 1975/76 | 5 | 7 | 160 | 292 | 523 | 1,000 | 1,266 | 793 | 668 | 391 | 252 | 15 | 5,372 |
| 1976/77 | 18 | 26 | 137 | 521 | 870 | 1,211 | 1,524 | 1,008 | 652 | 389 | 129 | 60 | 6,545 |
| 1977/78 | 2 | 11 | 68 | 436 | 613 | 1,092 | 1,300 | 1,255 | 934 | 498 | 228 | 39 | 6,476 |
| 1978/79 | 10 | 6 | 87 | 439 | 644 | 976 | 1,219 | 1,283 | 715 | 496 | 198 | 53 | 6,126 |
| 1979/80 | 9 | 13 | 102 | 421 | 579 | 936 | 1,137 | 1,103 | 900 | 450 | 166 | 65 | 5,881 |
| 1980/81 | 5 | 2 | 60 | 463 | 779 | 1,126 | 1,389 | 884 | 892 | 396 | 207 | 32 | 6,185 |
| 1981/82 | 6 | 18 | 121 | 483 | 707 | 1,082 | 1,377 | 991 | 857 | 562 | 136 | 72 | 6,412 |
| 1982/83 | 6 | 40 | 111 | 372 | 600 | 819 | 1,097 | 944 | 762 | 536 | 267 | 34 | 5,588 |
| **ALLENTOWN** | | | | | | | | | | | | | |
| 1973/74 | 0 | 2 | 72 | 290 | 593 | 922 | 1,036 | 968 | 755 | 385 | 216 | 32 | 5,271 |
| 1974/75 | 2 | 0 | 123 | 471 | 638 | 917 | 1,027 | 919 | 841 | 577 | 98 | 19 | 5,632 |
| 1975/76 | 0 | 7 | 122 | 257 | 482 | 995 | 1,262 | 820 | 713 | 414 | 219 | 28 | 5,319 |
| 1976/77 | 1 | 9 | 101 | 455 | 817 | 1,174 | 1,428 | 950 | 604 | 384 | 127 | 35 | 6,085 |
| 1977/78 | 0 | 10 | 56 | 356 | 623 | 1,077 | 1,238 | 1,190 | 871 | 430 | 189 | 15 | 6,055 |
| 1978/79 | 9 | 0 | 94 | 368 | 614 | 971 | 1,142 | 1,241 | 633 | 460 | 125 | 29 | 5,686 |
| 1979/80 | 13 | 22 | 76 | 386 | 509 | 884 | 1,058 | 1,087 | 808 | 356 | 87 | 41 | 5,327 |
| 1980/81 | 0 | 0 | 26 | 326 | 702 | 1,092 | 1,290 | 823 | 818 | 392 | 163 | 6 | 5,638 |
| 1981/82 | 0 | 3 | 100 | 465 | 643 | 1,058 | 1,389 | 975 | 851 | 528 | 110 | 50 | 6,172 |
| 1982/83 | 5 | 28 | 82 | 347 | 575 | 815 | 1,071 | 920 | 708 | 477 | 222 | 23 | 5,273 |
| **AVOCA** | | | | | | | | | | | | | |
| 1973/74 | 2 | 11 | 140 | 368 | 699 | 1,036 | 1,145 | 1,135 | 934 | 480 | 291 | 65 | 6,306 |
| 1974/75 | 5 | 2 | 155 | 503 | 655 | 941 | 1,024 | 913 | 902 | 627 | 88 | 25 | 5,840 |
| 1975/76 | 0 | 8 | 158 | 291 | 509 | 1,043 | 1,322 | 864 | 737 | 451 | 265 | 31 | 5,679 |
| 1976/77 | 8 | 25 | 155 | 519 | 834 | 1,297 | 1,546 | 1,058 | 756 | 487 | 206 | 90 | 6,981 |
| 1977/78 | 14 | 37 | 119 | 505 | 653 | 1,090 | 1,252 | 1,279 | 984 | 562 | 240 | 73 | 6,808 |
| 1978/79 | 38 | 2 | 153 | 436 | 728 | 1,103 | 1,257 | 1,370 | 747 | 552 | 221 | 66 | 6,673 |
| 1979/80 | 34 | 31 | 120 | 420 | 568 | 900 | 1,144 | 1,175 | 895 | 414 | 137 | 94 | 5,932 |
| 1980/81 | 1 | 0 | 82 | 466 | 813 | 1,211 | 1,407 | 835 | 886 | 416 | 195 | 19 | 6,331 |
| 1981/82 | 2 | 5 | 132 | 485 | 706 | 1,105 | 1,426 | 1,034 | 896 | 554 | 147 | 68 | 6,560 |
| 1982/83 | 17 | 55 | 112 | 390 | 619 | 870 | 1,158 | 992 | 805 | 569 | 292 | 41 | 5,920 |

| Season | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ERIE** | | | | | | | | | | | | | |
| 1973/74 | 9 | 18 | 141 | 309 | 658 | 1,022 | 1,077 | 1,128 | 915 | 521 | 373 | 101 | 6,272 |
| 1974/75 | 32 | 9 | 204 | 511 | 713 | 1,046 | 1,081 | 1,016 | 1,013 | 781 | 203 | 51 | 6,660 |
| 1975/76 | 3 | 14 | 197 | 381 | 546 | 1,057 | 1,361 | 931 | 804 | 580 | 386 | 51 | 6,311 |
| 1976/77 | 28 | 42 | 163 | 519 | 920 | 1,269 | 1,620 | 1,116 | 751 | 519 | 249 | 126 | 7,322 |
| 1977/78 | 9 | 51 | 110 | 477 | 636 | 1,131 | 1,395 | 1,408 | 1,143 | 688 | 303 | 84 | 7,435 |
| 1978/79 | 15 | 2 | 125 | 481 | 723 | 1,046 | 1,406 | 1,424 | 874 | 678 | 369 | 106 | 7,249 |
| 1979/80 | 36 | 17 | 84 | 378 | 634 | 939 | 1,188 | 1,275 | 1,045 | 644 | 299 | 161 | 6,700 |
| 1980/81 | 12 | 2 | 108 | 520 | 775 | 1,156 | 1,400 | 967 | 982 | 523 | 345 | 42 | 6,832 |
| 1981/82 | 3 | 6 | 153 | 467 | 694 | 1,034 | 1,413 | 1,159 | 942 | 672 | 158 | 123 | 6,824 |
| 1982/83 | 11 | 47 | 126 | 336 | 605 | 762 | 1,062 | 933 | 814 | 585 | 312 | 67 | 5,660 |
| **HARRISBURG** | | | | | | | | | | | | | |
| 1973/74 | 0 | 1 | 34 | 238 | 534 | 887 | 931 | 910 | 683 | 289 | 133 | 2 | 4,642 |
| 1974/75 | 0 | 0 | 94 | 414 | 600 | 911 | 977 | 903 | 818 | 520 | 97 | 13 | 5,347 |
| 1975/76 | 0 | 0 | 87 | 232 | 445 | 951 | 1,150 | 730 | 639 | 354 | 193 | 23 | 4,804 |
| 1976/77 | 0 | 5 | 75 | 418 | 756 | 1,075 | 1,387 | 966 | 588 | 340 | 106 | 32 | 5,748 |
| 1977/78 | 0 | 5 | 35 | 377 | 562 | 1,029 | 1,196 | 1,175 | 810 | 414 | 173 | 17 | 5,793 |
| 1978/79 | 14 | 0 | 48 | 321 | 544 | 876 | 1,104 | 1,182 | 611 | 435 | 123 | 26 | 5,284 |
| 1979/80 | 12 | 14 | 71 | 393 | 536 | 844 | 1,070 | 1,033 | 799 | 361 | 103 | 48 | 4,284 |
| 1980/81 | 0 | 0 | 57 | 411 | 761 | 1,091 | 1,277 | 844 | 809 | 339 | 147 | 6 | 5,742 |
| 1981/82 | 0 | 1 | 94 | 437 | 599 | 1,021 | 1,304 | 948 | 812 | 518 | 128 | 61 | 5,923 |
| 1982/83 | 7 | 12 | 67 | 318 | 520 | 725 | 985 | 876 | 686 | 468 | 221 | 25 | 4,910 |
| **PHILADELPHIA** | | | | | | | | | | | | | |
| 1973/74 | 0 | 0 | 18 | 196 | 507 | 810 | 897 | 926 | 667 | 292 | 128 | 11 | 4,452 |
| 1974/75 | 0 | 0 | 46 | 313 | 500 | 786 | 852 | 812 | 732 | 483 | 66 | 4 | 4,594 |
| 1975/76 | 0 | 0 | 45 | 152 | 372 | 866 | 1,120 | 692 | 572 | 307 | 119 | 13 | 4,258 |
| 1976/77 | 0 | 2 | 42 | 387 | 743 | 1,069 | 1,390 | 873 | 505 | 258 | 73 | 36 | 5,378 |
| 1977/78 | 0 | 0 | 24 | 328 | 558 | 998 | 1,139 | 1,121 | 797 | 423 | 161 | 10 | 5,559 |
| 1978/79 | 5 | 0 | 41 | 296 | 507 | 811 | 999 | 1,170 | 556 | 378 | 38 | 17 | 4,818 |
| 1979/80 | 4 | 7 | 28 | 324 | 439 | 823 | 1,021 | 1,016 | 763 | 301 | 72 | 17 | 4,815 |
| 1980/81 | 0 | 0 | 22 | 320 | 646 | 999 | 1,222 | 752 | 768 | 309 | 129 | 4 | 5,171 |
| 1981/82 | 0 | 0 | 58 | 364 | 576 | 936 | 1,243 | 850 | 714 | 440 | 50 | 25 | 5,256 |
| 1982/83 | 0 | 8 | 31 | 277 | 497 | 730 | 951 | 861 | 653 | 423 | 128 | 2 | 4,561 |

| Season | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PITTSBURGH** | | | | | | | | | | | | | |
| 1973/74 | 2 | 8 | 55 | 274 | 621 | 978 | 957 | 978 | 729 | 403 | 223 | 54 | 5,282 |
| 1974/75 | 0 | 0 | 124 | 384 | 630 | 1,001 | 997 | 916 | 881 | 617 | 116 | 48 | 5,714 |
| 1975/76 | 0 | 0 | 192 | 362 | 554 | 989 | 1,278 | 801 | 605 | 453 | 301 | 24 | 5,559 |
| 1976/77 | 15 | 59 | 159 | 587 | 953 | 1,268 | 1,655 | 1,060 | 658 | 436 | 138 | 102 | 7,090 |
| 1977/78 | 11 | 41 | 78 | 442 | 583 | 1,043 | 1,307 | 1,229 | 860 | 412 | 208 | 38 | 6,253 |
| 1978/79 | 4 | 3 | 80 | 485 | 656 | 993 | 1,346 | 1,311 | 671 | 458 | 219 | 38 | 6,264 |
| 1979/80 | 23 | 26 | 111 | 438 | 601 | 935 | 1,175 | 1,177 | 906 | 500 | 172 | 71 | 6,135 |
| 1980/81 | 0 | 5 | 48 | 476 | 787 | 1,117 | 1,372 | 936 | 904 | 391 | 223 | 18 | 6,277 |
| 1981/82 | 3 | 10 | 159 | 475 | 736 | 1,098 | 1,361 | 1,017 | 819 | 586 | 82 | 67 | 6,413 |
| 1982/83 | 9 | 23 | 119 | 336 | 605 | 770 | 1,080 | 904 | 746 | 535 | 280 | 44 | 5,451 |
| **WILLIAMSPORT** | | | | | | | | | | | | | |
| 1973/74 | 5 | 16 | 119 | 354 | 672 | 1,027 | 1,087 | 1,047 | 828 | 427 | 258 | 36 | 5,876 |
| 1974/75 | 1 | 0 | 142 | 488 | 648 | 950 | 1,059 | 940 | 852 | 648 | 155 | 44 | 5,927 |
| 1975/76 | 1 | 9 | 168 | 324 | 529 | 1,023 | 1,305 | 850 | 704 | 393 | 217 | 19 | 5,542 |
| 1976/77 | 0 | 12 | 121 | 478 | 855 | 1,201 | 1,547 | 1,008 | 624 | 366 | 119 | 38 | 6,369 |
| 1977/78 | 4 | 15 | 46 | 444 | 588 | 1,126 | 1,300 | 1,239 | 938 | 495 | 190 | 28 | 6,413 |
| 1978/79 | 9 | 0 | 76 | 381 | 633 | 998 | 1,179 | 1,264 | 696 | 497 | 167 | 40 | 5,940 |
| 1979/80 | 15 | 19 | 131 | 438 | 601 | 919 | 1,141 | 1134 | 863 | 405 | 139 | 77 | 5,882 |
| 1980/81 | 0 | 0 | 65 | 472 | 830 | 1,232 | 1,378 | 886 | 877 | 391 | 130 | 7 | 6,268 |
| 1981/82 | 0 | 0 | 97 | 416 | 677 | 1,070 | 1,408 | 1,020 | 903 | 558 | 123 | 57 | 6,329 |
| 1982/83 | 15 | 45 | 108 | 393 | 632 | 865 | 1,101 | 934 | 736 | 511 | 271 | 50 | 5,661 |

**Sources:** U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Environmental Data and Information Service, *Historical Climatology Series No. 5-1, State, Regional, and National Monthly and Seasonal Heating Degree Days Weighted by Population; Local Climatological Data, Annual Summary with Comparative Data.*

## APPENDIX E
## COOLING DEGREE DAYS FOR PENNSYLVANIA AND SELECTED CITIES

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PENNSYLVANIA** | | | | | | | | | | | | | |
| 1973 | 0 | 0 | 2 | 0 | 11 | 186 | 254 | 255 | 86 | 8 | 0 | 0 | 802 |
| 1974 | 0 | 0 | 0 | 0 | 23 | 81 | 218 | 205 | 44 | 0 | 0 | 0 | 571 |
| 1975 | 0 | 0 | 0 | 0 | 68 | 133 | 234 | 234 | 28 | 11 | 0 | 0 | 708 |
| 1976 | 0 | 0 | 2 | 0 | 18 | 186 | 165 | 153 | 41 | 0 | 0 | 0 | 565 |
| 1977 | 0 | 0 | 0 | 0 | 66 | 84 | 266 | 202 | 90 | 0 | 0 | 0 | 708 |
| 1978 | 0 | 0 | 0 | 0 | 20 | 119 | 183 | 249 | 72 | 0 | 0 | 0 | 643 |
| 1979 | 0 | 0 | 0 | 0 | 33 | 85 | 194 | 184 | 58 | 0 | 0 | 0 | 554 |
| 1980 | 0 | 0 | 0 | 0 | 46 | 77 | 263 | 289 | 110 | 0 | 0 | 0 | 785 |
| 1981 | 0 | 0 | 0 | 0 | 28 | 136 | 230 | 155 | 46 | 0 | 0 | 0 | 595 |
| 1982 | 0 | 0 | 0 | 0 | 60 | 69 | 229 | 111 | 51 | 0 | 0 | 0 | 520 |
| 1983 | 0 | 0 | 0 | 0 | 13 | 126 | 261 | 260 | 73 | 4 | 0 | 0 | 737 |
| **ALLENTOWN** | | | | | | | | | | | | | |
| 1973 | 0 | 0 | 0 | 3 | 7 | 212 | 322 | 331 | 103 | 4 | 0 | 0 | 982 |
| 1974 | 0 | 0 | 0 | 16 | 40 | 86 | 266 | 236 | 52 | 0 | 0 | 0 | 696 |
| 1975 | 0 | 0 | 0 | 0 | 79 | 154 | 279 | 247 | 18 | 13 | 1 | 0 | 791 |
| 1976 | 0 | 0 | 0 | 37 | 20 | 262 | 214 | 203 | 59 | 2 | 0 | 0 | 797 |
| 1977 | 0 | 0 | 4 | 13 | 99 | 155 | 331 | 263 | 115 | 1 | 5 | 0 | 986 |
| 1978 | 0 | 0 | 0 | 0 | 65 | 196 | 247 | 264 | 76 | 0 | 0 | 0 | 848 |
| 1979 | 0 | 0 | 0 | 1 | 42 | 126 | 274 | 268 | 92 | 7 | 1 | 0 | 811 |
| 1980 | 0 | 0 | 0 | 0 | 59 | 147 | 388 | 413 | 194 | 6 | 0 | 0 | 1207 |
| 1981 | 0 | 0 | 0 | 0 | 50 | 210 | 307 | 183 | 61 | 0 | 0 | 0 | 811 |
| 1982 | 0 | 0 | 0 | 1 | 37 | 76 | 274 | 137 | 63 | 13 | 0 | 0 | 601 |
| 1983 | 0 | 0 | 0 | 11 | 21 | 179 | 361 | 337 | 148 | 13 | – | – | – |
| **AVOCA** | | | | | | | | | | | | | |
| 1973 | 0 | 0 | 0 | 4 | 0 | 132 | 212 | 223 | 72 | 7 | 0 | 0 | 650 |
| 1974 | 0 | 0 | 0 | 10 | 28 | 52 | 194 | 117 | 46 | 0 | 0 | 0 | 447 |
| 1975 | 0 | 0 | 0 | 0 | 91 | 146 | 278 | 207 | 13 | 14 | 0 | 0 | 749 |
| 1976 | 0 | 0 | 0 | 46 | 16 | 198 | 145 | 159 | 37 | 0 | 0 | 0 | 601 |
| 1977 | 0 | 0 | 2 | 13 | 57 | 62 | 208 | 162 | 59 | 0 | 2 | 0 | 565 |
| 1978 | 0 | 0 | 0 | 0 | 52 | 84 | 181 | 194 | 26 | 0 | 0 | 0 | 537 |
| 1979 | 0 | 0 | 0 | 2 | 32 | 78 | 218 | 214 | 75 | 15 | 0 | 0 | 634 |
| 1980 | 0 | 0 | 0 | 0 | 42 | 107 | 263 | 322 | 122 | 3 | 0 | 0 | 859 |
| 1981 | 0 | 0 | 0 | 4 | 42 | 131 | 231 | 172 | 55 | 0 | 0 | 0 | 635 |
| 1982 | 0 | 0 | 0 | 1 | 34 | 55 | 208 | 98 | 41 | 3 | 5 | 0 | 445 |
| 1983 | 0 | 0 | 0 | 4 | 12 | 125 | 243 | 224 | 118 | 9 | – | – | – |

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ERIE** | | | | | | | | | | | | | |
| 1973 | 0 | 0 | 0 | 6 | 0 | 84 | 163 | 167 | 76 | 1 | 0 | 0 | 497 |
| 1974 | 0 | 0 | 0 | 5 | 9 | 55 | 120 | 114 | 23 | 0 | 0 | 0 | 326 |
| 1975 | 0 | 0 | 0 | 0 | 64 | 132 | 221 | 156 | 9 | 6 | 0 | 0 | 588 |
| 1976 | 0 | 0 | 0 | 10 | 5 | 98 | 81 | 110 | 33 | 2 | 0 | 0 | 339 |
| 1977 | 0 | 0 | 2 | 9 | 52 | 42 | 179 | 121 | 44 | 0 | 1 | 0 | 450 |
| 1978 | 0 | 0 | 0 | 0 | 32 | 94 | 162 | 198 | 48 | 0 | 0 | 0 | 534 |
| 1979 | 0 | 0 | 0 | 3 | 29 | 69 | 125 | 163 | 71 | 32 | 0 | 0 | 492 |
| 1980 | 0 | 0 | 0 | 0 | 20 | 56 | 162 | 234 | 75 | 4 | 0 | 0 | 551 |
| 1981 | 0 | 0 | 0 | 2 | 8 | 81 | 230 | 187 | 65 | 0 | 0 | 0 | 573 |
| 1982 | 0 | 0 | 0 | 4 | 35 | 123 | 201 | 90 | 59 | 8 | 5 | 4 | 529 |
| 1983 | 0 | 0 | 0 | 0 | 7 | 135 | 261 | 235 | 117 | 15 | — | — | — |
| **HARRISBURG** | | | | | | | | | | | | | |
| 1973 | 0 | 0 | 0 | 8 | 13 | 266 | 334 | 352 | 148 | 9 | 0 | 0 | 1130 |
| 1974 | 0 | 0 | 0 | 34 | 79 | 176 | 401 | 381 | 88 | 1 | 3 | 0 | 1163 |
| 1975 | 0 | 0 | 0 | 0 | 97 | 192 | 325 | 354 | 44 | 12 | 2 | 0 | 1026 |
| 1976 | 0 | 0 | 0 | 47 | 22 | 283 | 233 | 240 | 73 | 3 | 0 | 0 | 901 |
| 1977 | 0 | 0 | 4 | 19 | 95 | 147 | 347 | 297 | 140 | 1 | 3 | 0 | 1053 |
| 1978 | 0 | 0 | 0 | 0 | 69 | 162 | 273 | 377 | 133 | 1 | 0 | 0 | 1015 |
| 1979 | 0 | 0 | 0 | 5 | 43 | 138 | 279 | 264 | 92 | 7 | 0 | 0 | 828 |
| 1980 | 0 | 0 | 0 | 0 | 57 | 138 | 355 | 350 | 145 | 0 | 0 | 0 | 1045 |
| 1981 | 0 | 0 | 0 | 6 | 60 | 213 | 339 | 232 | 66 | 0 | 0 | 0 | 916 |
| 1982 | 0 | 0 | 0 | 2 | 48 | 70 | 307 | 191 | 83 | 19 | 4 | 0 | 724 |
| 1983 | 0 | 0 | 0 | 6 | 22 | 154 | 343 | 315 | 146 | 13 | — | — | — |
| **PHILADELPHIA** | | | | | | | | | | | | | |
| 1973 | 0 | 0 | 0 | 16 | 35 | 294 | 404 | 435 | 193 | 23 | 0 | 0 | 1400 |
| 1974 | 0 | 0 | 0 | 24 | 55 | 179 | 373 | 372 | 145 | 5 | 12 | 0 | 1165 |
| 1975 | 0 | 0 | 0 | 0 | 121 | 224 | 366 | 380 | 98 | 42 | 12 | 0 | 1243 |
| 1976 | 0 | 0 | 0 | 64 | 58 | 326 | 326 | 315 | 115 | 7 | 0 | 0 | 1211 |
| 1977 | 0 | 0 | 10 | 32 | 104 | 150 | 402 | 355 | 175 | 3 | 6 | 0 | 1237 |
| 1978 | 0 | 0 | 0 | 0 | 57 | 244 | 338 | 447 | 153 | 8 | 0 | 0 | 1247 |
| 1979 | 0 | 0 | 6 | 5 | 90 | 146 | 357 | 339 | 137 | 16 | 1 | 0 | 1097 |
| 1980 | 0 | 0 | 0 | 0 | 89 | 194 | 428 | 470 | 244 | 10 | 0 | 0 | 1435 |
| 1981 | 0 | 0 | 0 | 9 | 62 | 224 | 375 | 315 | 119 | 1 | 0 | 0 | 1105 |
| 1982 | 0 | 0 | 0 | 3 | 85 | 142 | 376 | 280 | 115 | 31 | 5 | 0 | 1037 |
| 1983 | 0 | 0 | 0 | 11 | 43 | 217 | 409 | 380 | 199 | 27 | — | — | — |

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PITTSBURGH** | | | | | | | | | | | | | |
| 1973 | 0 | 0 | 0 | 10 | 5 | 185 | 264 | 269 | 108 | 5 | 0 | 0 | 846 |
| 1974 | 0 | 0 | 0 | 13 | 19 | 66 | 258 | 247 | 45 | 5 | 4 | 0 | 657 |
| 1975 | 0 | 0 | 0 | 0 | 60 | 137 | 248 | 257 | 12 | 7 | 0 | 0 | 721 |
| 1976 | 0 | 0 | 1 | 25 | 14 | 134 | 99 | 73 | 12 | 0 | 0 | 0 | 358 |
| 1977 | 0 | 0 | 3 | 14 | 83 | 75 | 231 | 141 | 72 | 0 | 4 | 0 | 623 |
| 1978 | 0 | 0 | 0 | 0 | 69 | 178 | 260 | 207 | 122 | 0 | 0 | 0 | 836 |
| 1979 | 0 | 0 | 0 | 9 | 41 | 125 | 193 | 175 | 70 | 7 | 0 | 0 | 620 |
| 1980 | 0 | 0 | 0 | 0 | 34 | 115 | 317 | 306 | 118 | 0 | 0 | 0 | 890 |
| 1981 | 0 | 0 | 0 | 5 | 25 | 139 | 230 | 160 | 72 | 0 | 0 | 0 | 631 |
| 1982 | 0 | 0 | 0 | 0 | 79 | 33 | 246 | 127 | 77 | 15 | 3 | 0 | 580 |
| 1983 | 0 | 0 | 0 | 3 | 3 | 135 | 263 | 251 | 115 | 0 | – | – | – |
| **WILLIAMSPORT** | | | | | | | | | | | | | |
| 1973 | 0 | 0 | 0 | 4 | 0 | 186 | 205 | 213 | 83 | 1 | 0 | 0 | 692 |
| 1974 | 0 | 0 | 0 | 11 | 26 | 63 | 217 | 204 | 43 | 0 | 0 | 0 | 564 |
| 1975 | 0 | 0 | 0 | 0 | 54 | 108 | 231 | 197 | 10 | 4 | 0 | 0 | 604 |
| 1976 | 0 | 0 | 0 | 35 | 20 | 223 | 173 | 177 | 47 | 0 | 0 | 0 | 675 |
| 1977 | 0 | 0 | 0 | 18 | 91 | 106 | 282 | 241 | 119 | 0 | 5 | 0 | 862 |
| 1978 | 0 | 0 | 0 | 0 | 63 | 134 | 237 | 310 | 83 | 0 | 0 | 0 | 827 |
| 1979 | 0 | 0 | 0 | 3 | 48 | 105 | 262 | 212 | 73 | 4 | 0 | 0 | 707 |
| 1980 | 0 | 0 | 0 | 0 | 34 | 104 | 279 | 333 | 128 | 0 | 0 | 0 | 878 |
| 1981 | 0 | 0 | 0 | 5 | 60 | 186 | 301 | 236 | 90 | 0 | 0 | 0 | 878 |
| 1982 | 0 | 0 | 0 | 0 | 42 | 48 | 213 | 103 | 56 | 2 | 5 | 0 | 469 |
| 1983 | 0 | 0 | 0 | 3 | 8 | 99 | 242 | 205 | 76 | 0 | – | – | – |

**Source:** U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Environmental Data and Information Service, *Historical Climatology Series No. 5-2, State, Regional, and National Monthly and Seasonal Cooling Degree Days Weighted by Population (1980 Census)*, April 1983; *Local Climatological Data, Annual Summary with Comparative Data.*

# APPENDIX F
# CENSUS DATA FOR HOME HEATING FUELS
# PENNSYLVANIA AND UNITED STATES

| | 1970 | (%) | 1980 | (%) | 1970-1980 Change Number | Percent |
|---|---|---|---|---|---|---|
| **PENNSYLVANIA** | | | | | | |
| Occupied Housing Unit | 3,702,304 | 100.0 | 4,219,606 | 100.0 | 517,302 | 14.0 |
| Utility Gas | 1,788,010 | 48.3 | 2,062,671 | 48.9 | 274,661 | 15.4 |
| Bottled, Tank, LP Gas | 31,412 | 0.9 | 41,357 | 0.9 | 9,945 | 31.7 |
| Electricity | 145,727 | 3.9 | 432,714 | 10.3 | 286,987 | 196.9 |
| Fuel Oil, Kerosene, etc. | 1,294,817 | 35.0 | 1,458,870 | 34.6 | 164,053 | 12.7 |
| Coal or Coke | 413,422 | 11.2 | 146,108 | 3.4 | − 267,314 | − 64.7 |
| Wood | 5,559 | 0.2 | 66,033 | 1.6 | 60,474 | 1087.9 |
| Other Fuel | 20,019 | 0.5 | 9,654 | 0.2 | − 10,365 | − 51.8 |
| No Fuel Used | 3,338 | 0.1 | 2,199 | 0.1 | − 1,139 | − 34.1 |
| **UNITED STATES** | | | | | | |
| Occupied Housing Unit | 63,446,641 | 100.0 | 80,389,673 | 100.0 | 16,943,032 | 26.7 |
| Utility Gas | 35,013,745 | 55.2 | 42,876,081 | 53.3 | 7,862,336 | 22.5 |
| Bottled, Tank, LP Gas | 3,806,948 | 6.0 | 4,417,493 | 5.5 | 610,545 | 16.0 |
| Electricity | 4,876,038 | 7.7 | 14,755,091 | 18.4 | 9,879,053 | 202.6 |
| Fuel Oil, Kerosene, etc. | 16,473,470 | 26.0 | 14,586,618 | 18.1 | − 1,886,852 | − 11.5 |
| Coal or Coke | 1,820,952 | 2.9 | 508,330 | 0.6 | − 1,312,622 | − 72.1 |
| Wood | 793,908 | 1.2 | 2,570,419 | 3.2 | 1,776,511 | 223.8 |
| Other Fuel | 266,286 | 0.4 | 137,454 | 0.2 | − 128,832 | − 48.4 |
| No Fuel Used | 395,294 | 0.6 | 538,187 | 0.7 | 142,893 | 36.1 |

**Sources:** U.S. Department of Commerce, Bureau of the Census.
Pennsylvania State Data Center, Institute of State and Regional Affairs, Pennsylvania State University, *Housing Unit Utility Characteristics, Census of Population and Housing*.

## APPENDIX G
## UNITED STATES PRICE INDICES, 1970-1982

| Year | Consumer Price Index All Items 1967 = 100 | Gross National Product Implicit Price Deflator 1972 = 100 | Producer Price Index All Commodities 1967 = 100 | Personal Consumption Expenditures, Total 1972 = 100 |
|---|---|---|---|---|
| 1970 | 116.3 | 91.5 | 110.4 | 92.5 |
| 1971 | 121.3 | 96.0 | 114.0 | 96.6 |
| 1972 | 125.3 | 100.0 | 119.1 | 100.0 |
| 1973 | 133.1 | 105.8 | 134.7 | 105.7 |
| 1974 | 147.7 | 115.1 | 160.1 | 116.4 |
| 1975 | 161.2 | 125.8 | 174.9 | 125.3 |
| 1976 | 170.5 | 132.3 | 183.0 | 131.7 |
| 1977 | 181.5 | 140.1 | 194.2 | 139.3 |
| 1978 | 195.4 | 150.4 | 209.3 | 149.1 |
| 1979 | 217.4 | 163.4 | 235.6 | 162.5 |
| 1980 | 246.8 | 178.6 | 268.8 | 179.2 |
| 1981 | 272.4 | 195.5 | 293.4 | 194.5 |
| 1982 | 289.1 | 207.2 | 299.4 | 206.0 |

**Sources:** U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1982-83.
U.S. Department of Commerce, Bureau of Economic Analysis, *Economic Indicators*, (monthly).

# APPENDIX H
# SELECTED OPEC ENERGY DATA

| | Crude Oil Production (1000 bbl/day) | | | Crude Oil Price ($/bbl) [3] | | | Proven Reserves (Billion bbl) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1980 | 1981 | 1982 [1] | Feb. 1981 | Jan. 1982 | Mar. 1983 | 1/1/81 | 1/1/82 | 1/1/83 |
| **MIDDLE EAST** | | | | | | | | | |
| Iran | 1,662 | 1,380 | 2,214 | 37.00 | 34.20 | 28.00 | 57.5 | 57.0 | 55.3 |
| Iraq | 2,514 | 1,000 | 972 | 37.50 | 34.93 | 29.83 | 30.0 | 30.6 | 41.0 |
| Kuwait [2] | 1,656 | 1,125 | 827 | 35.50 | 32.30 | 27.30 | 64.9 | 64.5 | 64.2 |
| Qatar | 472 | 405 | 328 | 37.42 | 35.45 | 29.49 | 3.6 | 3.4 | 3.4 |
| Saudi Arabia [2] | 9,900 | 9,815 | 6,470 | 32.00 | 34.00 | 29.00 | 165.0 | 164.6 | 162.4 |
| United Arab Emirates | 1,709 | 1,474 | 1,214 | 36.56 | 35.50 | 29.56 | 29.0 | 30.6 | 30.5 |
| **NORTH AFRICA** | | | | | | | | | |
| Algeria | 1,012 | 805 | 710 | 40.00 | 37.00 | — [4] | 8.2 | 8.1 | 9.4 |
| Libya | 1,787 | 1,140 | 1,158 | 41.00 | 37.00 | 30.50 | 23.0 | 22.6 | 21.5 |
| **WEST AFRICA** | | | | | | | | | |
| Gabon | 175 | 147 | 151 | 35.00 | 34.00 | — [4] | 0.5 | 0.5 | 0.5 |
| Nigeria | 2,055 | 1,433 | 1,295 | 40.02 | 36.52 | 30.00 | 16.7 | 16.5 | 16.8 |
| **FAR EAST** | | | | | | | | | |
| Indonesia | 1,577 | 1,605 | 1,339 | 35.00 | 35.00 | 29.53 | 9.5 | 9.8 | 9.6 |
| **SOUTH AMERICA** | | | | | | | | | |
| Ecuador | 204 | 204 | 211 | 39.30 | 33.25 | 28.25 | 0.9 | 0.9 | 0.9 |
| Venezuela | 2,168 | 2,102 | 1,891 | 32.88 | 32.88 | 27.88 | 18.0 | 20.3 | 21.5 |
| Total OPEC | 26,891 | 22,635 | 18,780 | 34.82 | 34.13 | — [4] | 426.8 | 429.4 | 437.0 |
| Total World | 59,538 | 55,788 | 53,190 | 35.49 | 34.18 | — [4] | 651.9 | 670.4 | 670.2 |

[1] *Preliminary.*

[2] *Includes about one-half of the production in the former Kuwait-Saudi Arabia Neutral Zone. In April 1983, total production in this region amounted to approximately 400,000 barrels per day.*

[3] *These are the governments' official prices applicable to sales to third parties and to crude sold back to companies still retaining an equity interest in Middle East oil producing ventures.*

[4] *Not available.*

**Sources:** U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review*, August 1983; *1982 Annual Energy Review*, April 1983; *1981 International Energy Annual*, September 1982.
American Petroleum Institute, *Basic Petroleum Data Book*, Vol. III, No. 2, May 1983.

## APPENDIX I
## UNITED STATES PETROLEUM IMPORTS, 1972-1982
### (Thousands of Barrels per Day)

| | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **OPEC Sources** | | | | | | | | | | | |
| Algeria | 92 | 136 | 190 | 282 | 432 | 559 | 649 | 636 | 488 | 311 | 170 |
| Indonesia | 164 | 213 | 300 | 390 | 539 | 541 | 573 | 420 | 348 | 366 | 248 |
| Iran | 142 | 223 | 469 | 280 | 298 | 535 | 555 | 304 | 9 | 0 | 35 |
| Libya | 123 | 164 | 4 | 232 | 453 | 723 | 654 | 658 | 554 | 319 | 26 |
| Nigeria | 251 | 459 | 713 | 762 | 1,025 | 1,143 | 919 | 1,080 | 857 | 620 | 514 |
| Saudi Arabia | 190 | 486 | 461 | 715 | 1,230 | 1,380 | 1,144 | 1,356 | 1,261 | 1,129 | 552 |
| United Arab Emirates | 73 | 71 | 74 | 117 | 254 | 335 | 385 | 281 | 172 | 81 | 92 |
| Venezuela | 960 | 1,135 | 979 | 702 | 700 | 690 | 645 | 690 | 481 | 406 | 412 |
| Other [1] | 52 | 106 | 88 | 122 | 134 | 287 | 226 | 212 | 130 | 90 | 97 |
| Sub-Total | 2,047 | 2,993 | 3,280 | 3,601 | 5,066 | 6,193 | 5,751 | 5,637 | 4,300 | 3,323 | 2,146 |
| **Non-OPEC Sources** | | | | | | | | | | | |
| Bahamas | 174 | 174 | 164 | 152 | 118 | 171 | 160 | 147 | 78 | 74 | 65 |
| Canada | 1,108 | 1,325 | 1,070 | 846 | 599 | 517 | 467 | 538 | 455 | 447 | 482 |
| Mexico | 21 | 16 | 8 | 71 | 87 | 179 | 318 | 439 | 533 | 522 | 685 |
| Netherland Antilles | 424 | 585 | 511 | 332 | 275 | 211 | 229 | 231 | 225 | 197 | 175 |
| Puerto Rico [2] | 102 | 99 | 90 | 90 | 88 | 105 | 94 | 92 | 88 | 62 | 50 |
| Trinidad/Tobago | 226 | 255 | 251 | 242 | 274 | 289 | 253 | 190 | 176 | 133 | 112 |
| Virgin Islands | 303 | 329 | 391 | 406 | 422 | 466 | 429 | 431 | 388 | 327 | 316 |
| Other [3] | 2,695 | 480 | 347 | 314 | 382 | 676 | 663 | 751 | 667 | 909 | 1,083 |
| Sub-Total | | 3,263 | 2,832 | 2,454 | 2,247 | 2,614 | 2,613 | 2,819 | 2,609 | 2,672 | 2,968 |
| TOTAL | 4,742 | 6,256 | 6,112 | 6,056 | 7,313 | 8,807 | 8,364 | 8,456 | 6,909 | 5,995 | 5,114 |

[1] *Includes Ecuador, Gabon, Iraq, Kuwait and Qatar.*
[2] *U.S. possessions.*
[3] *Includes Non-OPEC Arab, Western Europe, Angola, U.S.S.R., Rumania, other Western Hemisphere and Eastern Hemisphere.*

**Note:** Totals may not equal sum of components due to independent rounding.
**Note:** Beginning in October 1977, Strategic Petroleum Reserve imports are included.

**Sources:** U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review*, August 1983.
American Petroleum Institute, *Basic Petroleum Data Book*, Vol III, No. 2, May 1983.

# APPENDIX J
# GLOSSARY

**Anthracite Coal:** A hard black lustrous coal containing a high percentage of fixed carbon, a low percentage of volatile matter and generally having a heating value of 13,500 to 15,000 Btu per pound. Often referred to as "hard coal."

**Asphalt:** A dark brown to black cement-like material. The predominant constituents are bitumens which are obtained in petroleum processing. Its constituency can vary from a liquid to a solid. It is used as a base for road surfacing and other adhesive or protective purposes.

**Aviation Gasoline:** All special grades of gasoline for use in aviation reciprocating engines. It includes all refinery products within the gasoline range or additives that are blended into finished aviation gasoline.

**Barrel:** A volumetric unit of measurement equivalent to 42 U.S. gallons when referring to petroleum and petroleum products.

**Bituminous Coal:** A coal that is high in carbonaceous matter having a volatility greater than anthracite, a calorific value greater than lignite and generally having a heat value of 12,000 to 15,000 Btu per pound. Often referred to as "soft coal."

**British Thermal Unit (Btu):** The quantity of heat necessary to raise the temperature of one pound of water one degree Fahrenheit.

**Capacity:** The load for which a generator, turbine, transformer, transmission circuit, station, or system is rated. Installed capacity is that capacity shown by the nameplates of electrical apparatus, such as generating units, turbines, or other equipment in a station or system. The nameplate capacity is the full-load continuous rating of a generator, prime mover, or other electrical equipment under specified conditions as designated by the manufacturer.

**Coke:** Bituminous coal from which constituents have been driven off by heat so that the fixed carbon and the ash are fused together. It is used primarily in blast furnaces for smelting ores, especially iron ore.

**Commercial Sector:** Non-manufacturing business establishments which engage primarily in the sale of goods or services and for uses not directly involving industrial uses, electric utilities and residential uses. Included are motels, restaurants, wholesale businesses, retail stores, laundries, and other service enterprises, as well as health, social, and educational institutions, and federal, state, and local government.

**Constant Dollars:** Dollars adjusted to eliminate inflation from their value to reflect the value of one dollar in a base year; e.g., if the price in current dollars of gasoline has increased 15 percent, but the inflation rate is also 15 percent, the price in constant dollars has not gone up.

**Crude Oil:** A mixture of hydrocarbons that exists in the liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities.

**Current Dollars:** Dollar values that have not been corrected for changes in the general price level.

**Degree Days:** A unit that represents one degree of declination from a given point (as 65 °) in the mean daily outdoor temperature and that is used to measure heat requirements. A "cooling degree day" represents each degree of outdoor air temperature above 65 ° Fahrenheit. "Heating degree days" are deviations of the mean daily temperature below 65 ° Fahrenheit.

**Distillate Fuel Oil:** A light fuel oil distilled off during the refining process. Included are products known as No. 1 and No. 2 heating oils, diesel fuels, and No. 4 fuel oil. These products are used primarily for space heating, on-and off-highway diesel engine fuel and electric power generation.

**Electric Utility:** An enterprise engaged in the production, transmission or distribution of electricity for use by the public, including investor-owned, cooperatively-owned and government-owned (municipal systems, Federal agencies, state projects, and public power districts).

**End User:** Any ultimate consumer of any type of fossil fuel (petroleum, coal, natural gas) or electricity whether generated by fossil fuel or other energy sources. End users are often classified by economic sector, such as residential, commercial, industrial, transportation, agriculture and government.

**Energy:** The ability to do work. Electric energy is measured in watthours (Wh) and heat energy is generally measured in British thermal units (Btu).

**Ethane:** A normally gaseous, colorless compound recovered as a liquid at natural processing plants and refineries. It is used primarily as petrochemical feedstock for eventual production of chemicals and plastic materials.

**Feedstock:** The raw material furnished to a machine or process. Fossil fuels are used for their chemical properties rather than their values as fuel; e.g., oil used to produce plastics and synthetic fabrics.

**Fossil Fuels:** Any naturally occurring fuel of an organic nature, such as coal, crude oil, and natural gas.

**Free on Board (F.O.B.):** A term used in sales price quotations meaning, in general, that the seller assumes all responsibility and costs up to the specific point of delivery and that the buyer takes over responsibility and costs at that same point.

**Fuelwood:** Wood and wood products used as fuel. It includes roundwood, limbwood, bark, charcoal, forest residues, sawdust, wood and pulp waste, and spent pulping liquor. In this report, consumption estimates of fuelwood applies to the residential sector.

**Gallon:** A unit of liquid measure. The U.S. gallon contains 231 cubic inches or 8.3359 pounds with avoirdupois of distilled water at its maximum density and the barometer at 30 inches.

**Generation (Electric):** The act of producing electric energy from other forms of energy; also, the amount of electric energy so produced, expressed in watthours (wH). Gross generation is the total amount of electric energy produced by the generating units in a generating station or stations, measured at the generator terminals. Net generation is equal to gross generation less the electric energy consumed at the generating station for station use.

**Geothermal Energy:** The heat energy in the earth's crust which derives from the earth's molten interior. It can be tapped as steam or by injection of water to form steam.

**Gigawatt (GW):** One billion watts.

**Gross National Product (GNP):** The annual total value of the national output; the total value of goods and services in a given year.

**Housing Unit:** A structure or part of a structure in which a household lives or could live, with access to the outside of the building either directly or through a common hall. Housing units do not include group quarters, such as prisons, hospitals, dormitories, nursing homes, fraternity/sorority houses, or convents, in which 10 or more unrelated persons live. Hotels, motel rooms, mobile homes, and trailers are considered housing units if permanently occupied by a household.

**Hydro Power:** Electricity generation using water flow to drive a turbine.

**Implicit GNP Price Deflator:** A measure of the change in U.S. price levels which is the ratio of the current value of goods and services to the base year value for the same goods and services.

**Imports:** Receipts into the 50 States and the District of Columbia of foreign goods (including goods from U.S. territories and U.S. Foreign Trade Zones) that are classified by customs officials as "imports for consumption" or "withdrawals from bonded warehouses for consumption," including withdrawals bonded warehouses for military offshore use and for bunkering of vessels or aircraft engaged in international commerce.

**Industrial Sector:** The sector of the economy engaged primarily in either mining, construction, manufacturing and agriculture.

**Installed Capacity:** The sum of the engineering rating in watts of a public utility's electric generating units. The expected amount of power than can be produced by a specific unit or by a collection of units.

**Internal Combustion Plant:** A plant in which the prime mover is an internal combustion engine. An internal combustion engine has one or more cylinders in which the process of combustion takes place, converting energy released from the rapid burning of a fuel-air mixture into mechanical energy. Diesel engines are the principal types used in electric plants.

**Jet Fuel:** Includes both naptha-type and kerosene-type jet fuel meeting standards for use in aircraft turbine engines. Although most jet fuel is used in aircraft, some is used to generate electricity in gas turbines.

**Kerosene:** A petroleum middle distillate having burning properties suitable for use as an illuminant when burned in wick lamps. It is used primarily in space heaters, cooking stoves, and water heaters.

**Kilowatt (kW):** One thousand watts.

**Lignite:** A brownish-black coal of low rank with high inherent moisture and volatile matter. It is also referred to as "brown coal." It is used almost exclusively for electric power generation. It has a heating value of 6,000 to 7,500 Btu per pound.

**Liquefied Gases:** Propane, propylene, butanes, butylene, ethane-propane mixtures and propane-butane mixtures produced at a refinery or natural gas processing plant, including plants that fractionate raw natural gas plant liquids.

**Load Factor:** The ratio of average load carried by an electric power plant or system during a specific period to its peak load during that period.

**Lubricants:** All lubricating oils containing more than 50 percent by volume of refined petroleum distillate or specially treated petroleum residuum. Included are lubricating greases, lube base stocks, and all grades of lubricating oils from spindle oil and cylinder oil to those used in greases.

**Megawatt (Mw):** One million watts. One thousand kilowatts.

**Methane ($CH_4$):** The primary constituent of natural gas.

**Motor Gasoline:** A complex mixture of relatively volatile hydrocarbons, with or without small quantities of additives, that have been blended to form a fuel suitable for use in spark ignition engines. Included are leaded and unleaded products and all refinery products.

**Natural Gas:** A mixture of hydrocarbon compounds and small quantities of various non-hydrocarbons existing in the gaseous phase or in solution with crude oil in natural underground reservoirs at reservoir conditions. The heat content of natural gas (dry) is 1,021 Btu's per cubic foot.

**Natural Gas, Marketed Production:** Gross withdrawals from producing reservoirs less gas used for repressuring and quantities vented and flared.

**Natural Gas Plant Liquids:** Products obtained from processing natural gas at natural gas processing plants, including natural gasoline plants, cycling plants, and fractionators. Products obtained include ethane, liquefied petroleum gases (propane, butanes, propane-butane mixtures, and ethane-propane mixtures), isopentane, natural gasoline, unfractionated streams, plant condensate, and minor quantities of other finished products such as motor gasoline, special naphthas, jet fuel, kerosene, and distillate fuel oil.

**Nuclear Energy:** Energy liberated by a nuclear reaction (fission or fusion) or by radioactive decay.

**Organization of the Petroleum Exporting Countries (OPEC):** In 1980, OPEC included Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela.

**Other Hydrocarbons (Petroleum):** Other materials processed at refineries. Includes coal tar deratives, hydrogen, gilson-

ite, and natural gas received by the refinery for reforming into hydrogen.

**Petroleum:** A generic term applied to oil and oil products in all forms, such as crude oil, lease condensate, unfinished oil, refined petroleum products, natural gas plant liquids, and non-hydrocarbon compounds blended into finished petroleum products.

**Petroleum Imports:** Imports of petroleum into the 50 States and the District of Columbia from foreign countries, U.S. territories, and the U.S. Foreign Trade Zones. Included are imports for the Strategic Petroleum Reserve and withdrawals from bonded warehouses for on-shore consumption, offshore bunker use, and military use. Receipts of foreign petroleum into bonded warehouses, into U.S. territories, and U.S. Foreign Trade Zones are not included.

**Pipeline:** All parts of those physical facilities through which gas is moved in transportation, including pipe, valves and other appurtenance attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders and fabricated assemblies.

**Plant (Electric):** A station at which are located prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or nuclear energy into electric energy.

**Primary Energy:** Energy available directly from the original fuel, such as petroleum or natural gas, rather than from a secondary form, such as electricity.

**Prime Mover:** The engine, turbine, water wheel or similar machine which drives an electric generator.

**Propane:** A colorless, highly volatile hydrocarbon that is gaseous at ordinary atmospheric conditions and readily recovered as a liquid at natural gas processing plants and refineries. It is used primarily for residential and commercial heating and cooling, and also as a fuel for transportation and industrial uses, including petrochemical feedstock uses.

**Proved Reserves:** The estimated quantities of crude oil or natural gas which geological and engineering data demonstrate with reasonable certainty to be recoverable in the future from known reservoirs under existing economic and operating conditions.

**Quadrillion:** One million billion or $10^{15}$.

**Refined Petroleum Products:** Products obtained from the processing of crude oil, unfinished oils, natural gas liquids, and other miscellaneous hydrocarbon compounds. Includes aviation gasoline, motor gasoline, naptha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, ethane, liquefied petroleum gases, petrochemical feedstocks, special naphthas, lubricants, paraffin wax, petroleum coke, asphalt, road oil, still gas, natural gasoline, unfractionated streams and miscellaneous products.

**Refinery:** An industrial plant which processes crude oil and manufactures refined petroleum products.

**Renewable Energy:** Energy from sources that can be or are naturally replenished, such as wind, solar, tidal, biomass, geothermal.

**Residential Sector:** Private household establishments which cover mobile homes, single family detached homes, multifamily low-rise structures, multifamily high-rise structures, farm residences. Specifically included are the following end uses: space heating, water heating, air conditioning, cooking, lighting, clothes drying and refrigeration.

**Residual Fuel:** The heavier oils that remain after the distillate fuel oils and lighter hydrocarbons are boiled off in refinery operations. Included are products known as No. 5 and No. 6 fuel oil, heavy diesel oil, Navy Special Fuel Oil, Bunker C fuel oil, and acid sludge and pitch used as refinery fuels. Residual fuel oil is used for the production of electric power, space heating, vessel bunkering, and various industrial purposes.

**Retail Sales:** Retail sales of coal for commercial or residential heating.

**Road Oil:** Any heavy petroleum oil, including residual asphaltic oils, used as a dust palliative and for surface treatment of roads and highways. It is generally produced in six grades from 0, the most liquid, to 5, the most viscous.

**Special Naphthas:** All finished products within the gasoline range, specifically refined to a specified flash point and boiling range, for use as paint thinners, cleaners, and solvents. Excluded are naphthas to be blended or marketed as motor gasoline or aviation gasoline, or to be used as petrochemical and synthetic natural gas (SNG) feedstock.

**Storage, Underground:** The utilization of subsurface facilities for storing gas which has been transferred from its original location for the primary purposes of load balancing. The facilities are usually natural geological reservoirs such as depleted oil or gas fields or waterbearing sands sealed on the top by an impermeable cap rock. The facilities also may be manmade or natural caverns.

**Strategic Petroleum Reserves:** A plan developed to reduce the impact of interruption on imports of petroleum.

**Subbituminous Coal:** Black lignite or lignite coal of rank intermediate between lignite and bituminous coal. Used almost exclusively for electric power generation. It has a heating value of 9,000 to 11,000 Btu per pound.

**Surface Mine:** A mine producing coal which is usually within a few hundred feet of the surface by the removal of overburden (earth above or around the coal) to expose the coal bed which is then mined using surface excavation equipment such as draglines, power shovels, bulldozers, loaders and augers. It may also be known as an area, contour, open-pit, strip, or auger mine.

**Therm:** A unit of heating value equivalent to 100,000 British thermal units (Btu).

**Transportation Sector:** The sector of the economy engaged in moving people and commodities in both the public and private sectors. Included are military, railroad, vessel bunkering, and marine uses, as well as the pipeline transmission of natural gas.

**Unaccounted for Crude Oil:** Represents the arithmetic difference between the indicated demand for crude oil and the total disposition of crude oil. Indicated demand is the sum of crude oil production and crude oil imports less changes in crude oil stocks. Total disposition of crude oil is the sum of refinery input of crude oil, crude oil exports, crude oil burned as fuel, and crude oil losses.

**Unaccounted for Gas:** The difference between the total gas available from all sources and the total gas accounted for as sales, net interchange and company use. This difference includes leakage or other actual losses, discrepancies due to meter inaccuracies, variations of temperature and/or pressure, other variants, particularly due to measurements being made at different times, and in cycle billings, an amount of gas supply used but not billed as of the end of a period.

**Underground Mine:** A mine producing coal by tunneling into the earth to the coal bed which is then mined using underground mining equipment such as cutting machines and continuous, longwall and shortwall mining machines. Underground mines are classified according to the type of opening used to reach the coal, i.e. drift (level tunnel), slope (inclined tunnel) or shaft (vertical tunnel).

**Watt:** Electrical unit of power or work equal to one ampere flowing under a pressure of one volt.

**Woodfuel:** All types of wood, wood-derived fuel and wood by-products burned as fuel, including cord wood, limbwood, spent liquor, hog fuel, wood chips, bark, forest residues, and charcoal. In this report, consumption estimates of woodfuel applies to the commercial and industrial sectors.

## APPENDIX K
## PETROLEUM ADMINISTRATION FOR DEFENSE (PAD) DISTRICTS

| | |
|---|---|
| PAD District 1 | East Coast — District of Columbia and the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, and the following counties of the State of New York: Cayuga, Tompkins, Chemung and all counties east and north thereof. Also the following counties in the State of Pennsylvania: Bradford, Sullivan, Columbia, Montour, Northumberland, Dauphin, York and all counties each thereof.<br>Appalachian #1 — The State of West Virginia, and those parts of the States of Pennsylvania and New York not included in the East Coast District. |
| PAD District 2 | Appalachian #2 — The following counties of the State of Ohio: Erie, Huron, Crawford, Marion, Delaware, Franklin, Pickaway, Ross, Pike, Scioto, and all counties east thereof.<br>Indiana-Illinois-Kentucky — The States of Indiana, Illinois, Kentucky, Tennessee, Michigan, and that part of the State of Ohio not included in the Appalachian District.<br>Minnesota-Wisconsin-North and South Dakota — The States of Minnesota, Wisconsin, North Dakota, and South Dakota.<br>Oklahoma-Kansas-Missouri — The States of Oklahoma, Kansas, Missouri, Nebraska, and Iowa. |
| PAD District 3 | Texas Inland — The State of Texas except the Texas Gulf Coast District.<br>Texas Gulf Coast — The following counties of the State of Texas: Newton, Orange, Jefferson, Jasper, Tyler, Hardin, Liberty, Chambers, Polk, San Jacinto, Montgomery, Harris, Galveston, Waller, Fort Bend, Brazoria, Wharton, Matagorda, Jackson, Victoria, Calhoun, Refugio, Aransas, San Patricio, Nueces, Kleberg, Kenedy, Willacy, and Cameron.<br>Louisiana Gulf Coast — The following Parishes of the State of Louisiana: Vernon, Rapides, Avoyelles, Pointe Coupee, West Feliciana, East Feliciana, Saint Helena, Tangipahoa, Washington, and all Parishes south thereof. Also the following counties of the State of Mississippi: Pearl River, Stone, George, Hancock, Harrison, and Jackson. Also the following counties of the State of Alabama: Mobile and Baldwin.<br>North Louisiana-Arkansas — The State of Arkansas and those parts of the States of Louisiana, Mississippi, and Alabama not included in the Louisiana Gulf Coast District.<br>New Mexico — The State of New Mexico. |
| PAD District 4 | Rocky Mountain — The States of Montana, Idaho, Wyoming, Utah, and Colorado. |
| PAD District 5 | West Coast — The States of Washington, Oregon, California, Nevada, Arizona, Alaska, and Hawaii. |

## Petroleum Administration for Defense (PAD) Districts

# APPENDIX L
# CONVERSION FACTORS

| Approximate Heat Content of Various Fuels | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1981-83 |
|---|---|---|---|---|---|---|---|---|---|
| **Anthracite** | | | | | | | | | |
| Production | Million Btu/short ton | 23.39 | 22.77 | 23.18 | 23.52 | 23.59 | 23.35 | 23.69 | 23.69 |
| Imports/Exports | Million Btu/short ton | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 | 25.40 |
| Consumption, Avg. | Million Btu/short ton | 21.74 | 22.15 | 22.69 | 22.97 | 22.70 | 22.16 | 22.10 | 22.10 |
| Electric Utility Consumption | Million Btu/short ton | 17.06 | 17.53 | 17.24 | 17.10 | 17.45 | 17.65 | 18.17 | 18.17 |
| Non-Utility Consumption | Million Btu/short ton | 23.65 | 23.84 | 24.99 | 25.17 | 25.20 | 23.74 | 25.12 | 25.12 |
| **Bituminous Coal and Lignite** | | | | | | | | | |
| Production | Million Btu/short ton | 23.20 | 23.15 | 22.70 | 22.43 | 22.59 | 22.46 | 22.38 | 22.38 |
| Imports | Million Btu/short ton | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 |
| Exports | Million Btu/short ton | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 26.40 | 26.18 | 26.18 |
| Consumption, Avg. | Million Btu/short ton | 22.80 | 22.75 | 22.33 | 22.14 | 22.20 | 22.00 | 21.80 | 21.80 |
| Electric Utility Consumption | Million Btu/short ton | 21.66 | 21.69 | 21.48 | 21.28 | 21.38 | 21.30 | 21.09 | 21.09 |
| Non-Utility Consumption | Million Btu/short ton | 25.81 | 25.87 | 25.13 | 25.07 | 25.06 | 25.06 | 24.96 | 24.96 |
| Coal Coke | Million Btu/short ton | 26.00 | 26.00 | 26.00 | 26.00 | 26.00 | 26.00 | 26.00 | 26.00 |
| **Crude Petroleum** | | | | | | | | | |
| Production/Exports | Million Btu/barrel | 5.800 | 5.800 | 5.800 | 5.800 | 5.800 | 5.800 | 5.800 | 5.800 |
| Imports | Million Btu/barrel | 5.821 | 5.808 | 5.810 | 5.802 | 5.810 | 5.812 | 5.818 | 5.818 |
| **Crude Petroleum and Products** | | | | | | | | | |
| Imports, Avg. | Million Btu/barrel | 5.858 | 5.856 | 5.834 | 5.839 | 5.810 | 5.796 | 5.795 | 5.775 |
| Exports, Avg. | Million Btu/barrel | 5.748 | 5.745 | 5.797 | 5.808 | 5.832 | 5.820 | 5.821 | 5.821 |
| **Petroleum Products** | | | | | | | | | |
| Consumption, Avg. | Million Btu/barrel | 5.494 | 5.504 | 5.518 | 5.519 | 5.494 | 5.479 | 5.448 | 5.448 |
| LPG Consumption Avg. | Million Btu/barrel | 3.715 | 3.711 | 3.677 | 3.669 | 3.680 | 3.674 | 3.643 | 3.643 |
| **Natural Gas, dry** | | | | | | | | | |
| Production | Btu/cubic foot | 1,021 | 1,020 | 1,021 | 1,019 | 1,021 | 1,016 | 1,015 | 1,015 |
| Consumption | Btu/cubic foot | 1,021 | 1,020 | 1,021 | 1,019 | 1,021 | 1,026 | 1,027 | 1,027 |
| Electric Utility Consumption | Btu/cubic foot | 1,026 | 1,023 | 1,029 | 1,034 | 1,034 | 1,034 | 1,034 | 1,034 |
| Non-Utility Consumption | Btu/cubic foot | 1,020 | 1,019 | 1,019 | 1,016 | 1,018 | 1,024 | 1,025 | 1,025 |
| Imports | Btu/cubic foot | 1,026 | 1,025 | 1,026 | 1,030 | 1,037 | 1,022 | 1,014 | 1,014 |
| Wet Natural Gas Production | Btu/cubic foot | 1,014 | 1,013 | 1,013 | 1,013 | 1,013 | 1,013 | 1,011 | 1,011 |
| Hydro Power | Btu/kwh | 10,406 | 10,373 | 10,435 | 10,361 | 10,353 | 10,388 | 10,388 | 10,388 |
| Nuclear Power | Btu/kwh | 11,013 | 11,047 | 10,769 | 10,941 | 10,640 | 10,908 | 10,908 | 10,908 |
| Geothermal Power | Btu/kwh | 21,611 | 21,611 | 21,511 | 21,611 | 21,545 | 21,637 | 21,594 | 21,594 |
| Electricity Consumption | Btu/kwh | 3,412 | 3,412 | 3,412 | 3,412 | 3,412 | 3,412 | 3,412 | 3,412 |
| Wood and Waste | Btu/kwh | 10,406 | 10,373 | 10,435 | 10,435 | 10,435 | 10,435 | 10,435 | 10,435 |

# CONVERSION FACTORS

| Approximate Heat Content of Refined Petroleum Products | Million Btu/Barrel |
|---|---|
| Asphalt | 6.636 |
| Aviation Gasoline | 5.048 |
| Butane | 4.326 |
| Butane-propane mixture | 4.130 |
| Distillate fuel oil | 5.825 |
| Ethane | 3.082 |
| Ethane-propane mixture | 3.308 |
| Isobutane | 3.974 |
| Jet fuel-kerosene type | 5.670 |
| Jet fuel-naphtha type | 5.355 |
| Kerosene | 5.670 |
| Lubricants | 6.065 |
| Motor Gasoline | 5.253 |
| Natural Gasoline | 4.620 |
| Petrochemical feedstocks | |
| Naphtha 400° F or less | 5.248 |
| Other oils over 400° F | 5.825 |
| Still gas | 6.000 |
| Petroleum coke | 6.024 |
| Plant condensate | 5.418 |
| Propane | 3.836 |
| Residual fuel oil | 6.287 |
| Road oil | 6.636 |
| Special naphtha | 5.248 |
| Still gas | 6.000 |
| Unfinished oils | 5.825 |
| Unfractionated stream | 5.418 |
| Wax | 5.537 |
| Miscellaneous | 5.796 |

**Units of Measure**

Weight

| | | |
|---|---|---|
| 1 short ton | contains | 2,000 pounds |
| 1 metric ton | contains | 2,204 pounds |
| 1 long ton | contains | 2,240 pounds |

Energy Equivalents for Crude Oil

One barrel of crude oil equals approximately:

- 42 gallons
- 5.7 thousand cubic feet of natural gas (dry)
- 0.26 short tons of bituminous coal and lignite produced
- 1,700 kilowatt-hours of electricity consumed

| Average Annual Yields from a Barrel of Crude Oil Product | Gallons | Percentage of Barrel |
|---|---|---|
| Finished motor gasoline | 19.40 | 46.2 |
| Finished aviation gasoline | 0.08 | 0.2 |
| Liquefied gases and ethane | 0.92 | 2.2 |
| Naphtha-type jet fuel | 0.71 | 1.7 |
| Kerosene-type jet fuel | 2.69 | 6.4 |
| Kerosene | 0.38 | 0.9 |
| Distillate fuel oil | 9.03 | 21.5 |
| Residual fuel oil | 3.70 | 8.8 |
| Petrochemical feedstocks | 1.51 | 3.6 |
| Special naphthas | 0.17 | 0.4 |
| Lubricants | 0.50 | 1.2 |
| Wax | 0.04 | 0.1 |
| Petroleum coke | 1.43 | 3.4 |
| Asphalt and road oil | 1.13 | 2.7 |
| Still gas | 1.85 | 4.4 |
| **Miscellaneous** | **0.29** | **0.7** |
| Yield | 43.83 | 104.4 |
| **Processing Gain** | **−1.83** | **−4.4** |
| Total crude oil | 42.00 | 100.0 |

**Abbreviations**

| | | | | | |
|---|---|---|---|---|---|
| M | — Thousand or $10^3$ | Btu | — British Thermal Unit | Gal | — Gallon |
| MM | — Million or $10^6$ | Bbl | — Barrel | Kwh | — Kilowatt-hour |
| B | — Billion or $10^9$ | Cf | — Cubic Feet | Gwh | — Gigawatt-hour or million Kwh |
| T | — Trillion or $10^{12}$ | Tons | — Short Tons | Mwh | — Megawatt-hour |

G.S.P. — Gross State Product
G.N.P. — Gross National Product
OPEC — Organization of Petroleum Exporting Countries

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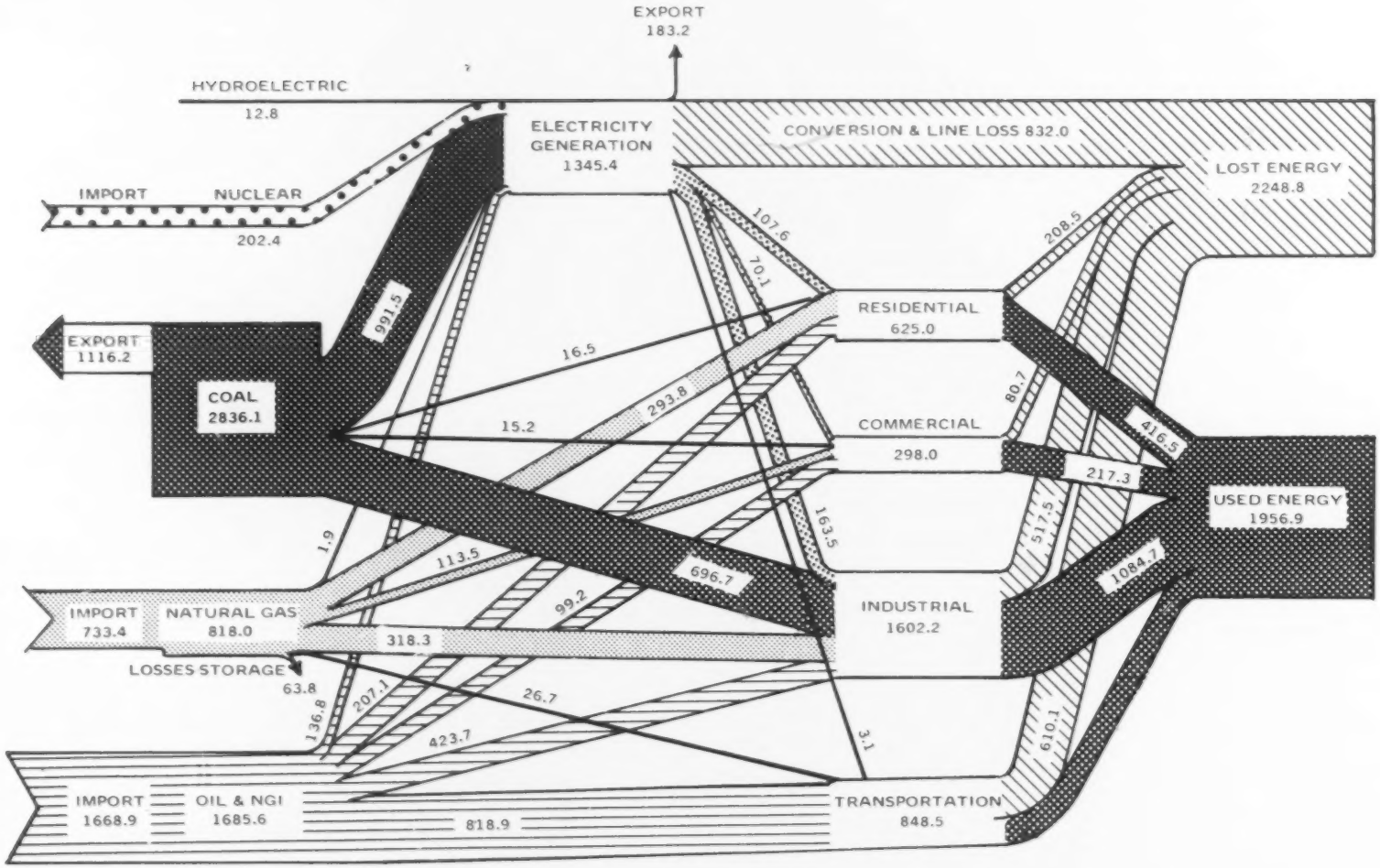
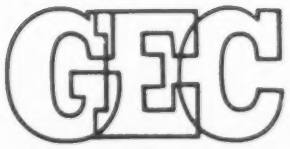
# ENERGY FLOWS IN PENNSYLVANIA - 1979

## TRILLION BTU



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